

Noise Exposure Map Update and Noise Compatibility Program Revision San Antonio International Airport

In Compliance with 14 CFR Part 150



December 2014

San Antonio Airport System
City of San Antonio Aviation Department
9800 Airport Boulevard
San Antonio, TX 78216

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SPONSOR'S CERTIFICATION

This is to certify the following:

- (1) The Noise Exposure Maps and Noise Compatibility Program revision with associated documentation for San Antonio International Airport (SAT) submitted in this volume to the Federal Aviation Administration under Title 14 of the Code of Federal Regulations Part 150, Subpart B, Section 150.21 and prepared by our consultants URS and Harris Miller Miller & Hanson, Inc. (HMMH) are true and complete.
- (2) Pursuant to Part 150, Subpart B, Section 150.21(b), all interested parties have been afforded adequate opportunity to submit their views, data, and comments concerning the correctness and adequacy of the draft noise exposure map, and of the descriptions of forecast aircraft operations.
- (3) The "2014 Existing Condition Noise Exposure Map" (Figure 10) accurately represents the conditions for calendar year 2014.
- (4) The "2019 Existing Condition Noise Exposure Map" (Figure 11) accurately represents the conditions for calendar year 2019.
- (5) It is further certified that all interested parties have been afforded adequate opportunity to submit their views, data, and comments concerning the correctness and adequacy of the Noise Compatibility Program revision and the supporting documentation.

12/15/14
Date of Signature

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Contents

Glossary.....	viii
1 INTRODUCTION.....	1
1.1 History of Noise and Land Use Compatibility at the San Antonio International Airport	1
1.2 Project Location and Setting	2
1.3 14 CFR Part 150 Overview	5
1.3.1 Noise Exposure Map	5
1.3.2 Noise Compatibility Program.....	6
1.3.3 Day-Night Average Sound Level, DNL.....	6
1.3.4 Community Annoyance	7
1.3.5 Noise/Land Use Compatibility Guidelines.....	7
1.4 Project Roles and Responsibilities	9
1.4.1 San Antonio Airport System	9
1.4.2 Federal Aviation Administration.....	9
1.4.3 Consulting Team	9
1.5 FAA NEM Checklist.....	10
2 EXISTING NOISE COMPATIBILITY PROGRAM	15
2.1 NA-1: Conduct live tests of noise abatement departure profiles.....	15
2.2 NA-2: Pursue additional voluntary noise abatement procedures to further reduce noise levels of aircraft operations.....	16
2.3 NA-3: Establish a preferential runway use program and enhance its effectiveness by extending existing runways.....	16
2.4 NA-4: For departures from Runway 3, establish a departure corridor that places aircraft over compatible land uses east of Wetmore Road to the extent possible	16
2.5 NA-5: For those times that Runway 21 must be used for departure, establish a departure corridor that places aircraft over the Highway 281 corridor to the extent possible	17
2.6 NA-6: Incorporate the findings and recommendations of the engine run-up study into the FAR Part 150 Noise Compatibility Program (NCP)	17
2.7 NA-7: Install an aircraft noise and operations monitoring system to track the use of departure corridors and departure profiles	17
2.8 NA-8: Enhance pilot awareness of noise-sensitive areas and noise abatement procedures by providing information for Jeppesen charts, airline pilot manuals, and fixed based operator information.....	18
2.9 NA-9: Investigate the use of noise barriers along Airport boundaries at runway ends to reduce the effects of takeoff roll noise.....	18
2.10 NA-10: Encourage Congress to seek stricter aircraft noise standards, particularly regarding a phase-out schedule for aircraft originally manufactured as Stage 2 that have been modified or are operated to meet Stage 3 noise standards.....	18
2.11 NA-11: Encourage the FAA to develop a phase-out schedule for FAR Part 36 Stage 2 aircraft weighing less than 75,000 pounds.....	18
2.12 NM-1: Continue the Residential Acoustical Treatment Program within the Noise Mitigation Boundary shown in the San Antonio International Airport 2014 Noise Exposure Map (NEM).....	19
2.13 NM-2: Continue to provide acoustical treatment for schools and religious facilities that have not yet received such treatment and are within the Noise Mitigation Boundary shown in the San Antonio International Airport 2014 Noise Exposure Map (NEM).....	19
2.14 NM-3: Study the mechanism for and impact of incorporating noise exposure acknowledgements into real estate transactions	19
2.15 NM-4: Study mechanisms to maintain compatible land uses in current and proposed flight corridors and to prevent development of additional incompatible noise sensitive land uses in areas exposed to DNL 65 and higher.....	20

3	LAND USE.....	21
3.1	Jurisdiction and Zoning around the Airport	23
3.2	Compatible Land Use Analysis.....	23
3.3	Land Use Measures.....	23
3.3.1	Sound Insulation.....	23
4	DEVELOPMENT OF NOISE CONTOURS.....	25
4.1	Airport Physical Parameters.....	25
4.2	Airport Operations	28
4.2.1	Development of 2014 Operations.....	28
4.2.2	Operations in 2014	29
4.2.3	Development of 2019 Operations.....	34
4.3	Aircraft Noise and Performance Characteristics	38
4.4	Runway Utilization	38
4.4.1	Existing Conditions – 2014 Runway Utilization.....	38
4.4.2	Forecast Conditions – 2019 Runway Utilization.....	41
4.5	Flight Track Geometry and Utilization	43
4.5.1	Overall Flight Track Density.....	43
4.6	Meteorological Conditions.....	44
4.7	Terrain.....	44
5	EXISTING AND FORECAST NOISE EXPOSURE MAPS.....	53
5.1	Comparison of 2014 Existing Contours and 2019 Forecast Contours	53
5.2	Compatible Land Use Analysis.....	54
5.2.1	Historic Resources and Non-Residential Noise-Sensitive Land Uses within the Noise Contours.....	61
5.2.2	Residential Land Uses and Population within the Noise Contours	61
5.2.3	Noise Mitigation Boundary.....	63
6	NOISE MEASUREMENT AND NOISE COMPLAINT ANALYSIS	67
6.1	Noise Measurement Analysis.....	67
6.2	Noise Complaint Analysis.....	69
7	NOISE COMPATIBILITY PROGRAM REVISION	71
7.1	FAA NCP Checklist.....	71
7.2	Existing NCP Elements for which Revision is Proposed	74
7.3	Proposed Revision to the Existing Noise Compatibility Program at San Antonio International Airport.....	75
8	PUBLIC PARTICIPATION.....	77
8.1	Project Specific Mailing List.....	77
8.2	Stakeholder Letter	78
8.3	Media List and Other Outreach Mechanisms.....	78
8.4	Informational Materials.....	80
8.5	Public Meeting and Hearing.....	80
8.6	Public Input Received during the Study Process.....	81

Figures

Figure 1 – San Antonio International Airport and Surrounding Communities.....	3
Figure 2 – Percentage of People Highly Annoyed.....	7
Figure 3 – Existing SAT Airport Layout.....	26
Figure 4 – Overall Runway Use Percentages for 2014.....	39
Figure 5 – Overall Runway Use Percentages for 2019.....	41
Figure 6 – Representative Sample of Modeled Arrival Flight Tracks (2014 & 2019).....	45
Figure 7 – Representative Sample of Modeled Departure Flight Tracks (2014 & 2019).....	47
Figure 8 – Flight Track Density Plot for San Antonio International Airport Jet Arrivals.....	49
Figure 9 – Flight Track Density Plot for San Antonio International Airport Jet Departures.....	51
Figure 10 – Existing Condition (2014) Noise Exposure Map.....	55
Figure 11 – Forecast Condition (2019) Noise Exposure Map.....	57
Figure 12 – Comparison of Existing (2014) and Forecast (2019) Noise Exposure Maps.....	59
Figure 13 – Noise Mitigation Boundary.....	65
Figure 14 – Aircraft Noise Complaints in Vicinity of SAT by Year.....	69

Tables

Table 1 – 14 CFR PART 150 Noise/Land Use Compatibility Guidelines.....	8
Table 2 – 14 CFR Part 150 Noise Exposure Map Checklist.....	10
Table 3 – Runway Details.....	27
Table 4 – 2014 Operations Summary.....	29
Table 5 – Modeled Average Daily Aircraft Operations for 2014.....	30
Table 6 – 2019 Operations Summary.....	34
Table 7 – Modeled Average Daily Aircraft Operations for 2019.....	35
Table 8 – Overall Runway Use Percentages for 2014.....	39
Table 9 – Modeled Average Daily Runway Use for 2014.....	40
Table 10 – Overall Runway Use Percentages for 2019.....	41
Table 11 – Modeled Average Daily Runway Use for 2019.....	42
Table 12 – Comparison of Land Area Enclosed by the 2014 and 2019 DNL dB Contours.....	53
Table 13 – Estimated Residential Population within 2014 and 2019 DNL Contours.....	62
Table 14 – Compatibility Analysis Results by Parcel Within 2014 (Existing Conditions) Noise Contours.....	62
Table 15 – Compatibility Analysis Results by Parcel Within 2019 (Future Conditions) Noise Contours.....	62
Table 16 – Comparison of NOMS Measurements and INM Predicted Noise Exposure in Vicinity of SAT.....	68
Table 17 – Aircraft Noise Complaints in Vicinity of SAT.....	69
Table 18 – 14 CFR Part 150 Noise Compatibility Program Checklist.....	71
Table 19 – List of Organizations Contacted for 2014 SAT NEM Update.....	77
Table 20 – List of Aeronautical Users of the Airport for 2014 SAT NEM Update.....	78
Table 21 – Media Outlets Receiving NEM Update Project Updates.....	79
Table 22 – Locations for Document Review.....	81

Glossary

ADO	-	Airports Development Office
AFB	-	Air Force Base
ANAV	-	Accurate Navigation
ANSI	-	American National Standards Institute
ASNA	-	Airport Safety and Noise Abatement Act
ATADS	-	Air Traffic Activity Data System
ATC	-	Air Traffic Control
ATCT	-	Air Traffic Control Tower
CFR	-	Code of Federal Regulations
dB	-	Decibel
DNL	-	Day-Night Average Sound Level
EIS	-	Environmental Impact Statement
ETMSC	-	Enhanced Traffic Management System Counts
FAA	-	Federal Aviation Administration
FEIS	-	Final Environmental Impact Statement
FMS	-	Flight Management System
FONSI	-	Finding Of No Significant Impact
GIS	-	Geographic Information System
GPS	-	Global Positioning System
HMMH	-	Harris Miller Miller & Hanson Inc.
HUD	-	Department of Housing and Urban Development
ICAO	-	International Civil Aviation Organization
INM	-	Integrated Noise Model
LAAS	-	Local Area Augmentation System
LDA	-	Localizer type Directional Aid
NADP	-	Noise Abatement Departure Procedure
NAVAIDS	-	Navigational Aid System
NCP	-	Noise Compatibility Program
NEM	-	Noise Exposure Map
NLR	-	Noise Level Reduction
RNAV	-	Area Navigation
ROA	-	Record of Approval
RATP	-	Residential Acoustical Treatment Program
SAAS	-	San Antonio Airport System
SAT	-	San Antonio International Airport
SID	-	Standard Instrument Departure
STAR	-	Standard Terminal Arrival Route
TAF	-	Terminal Area Forecast

1 INTRODUCTION

The emphasis on aircraft noise compatibility planning started with the passing of the Airport Safety and Noise Abatement (ASNA) Act of 1979. This act gave the Federal Aviation Administration (FAA) the authority to issue regulations on noise compatibility planning and provide a means for Federal funding for projects dedicated to improving the noise environment around an airport. These regulations became the impetus for publishing Title 14 of the Code of Federal Regulation (CFR) Part 150.

As a result, 14 CFR Part 150 “Airport Noise Compatibility Planning,”¹ sets forth standards for airport operators to use in documenting noise exposure in their airport environs and for establishing programs to minimize noise-related land use incompatibilities. While participation in this program by an airport is voluntary, over 250 airports, including San Antonio International Airport (SAT), have participated in the program, which assists in standardizing noise analysis at a national level. Airport participation provides access to Federal funding for implementing any FAA-approved noise compatibility program measure. 14 CFR Part 150 includes two principal elements: (1) a Noise Exposure Map (NEM) and (2) a Noise Compatibility Program (NCP). The San Antonio Airport System (SAAS) is updating the NEM and providing a revision to two existing NCP measures.

This report contains the draft updated Noise Exposure Map documentation for San Antonio International Airport, as required by the specific provisions of 14 CFR Part 150 Subpart B, Section 150.21, and Appendices A through I.

The purpose and goals of this NEM update and NCP revision are to:

- Update the SAT NEM to reflect current implementation of the Noise Compatibility Program and to reflect current and forecasted aircraft operations at SAT
- Collect, analyze and report information regarding current and forecasted operations as it relates to SAT aircraft noise and land use compatibility
- Continue implementation of the Noise Compatibility Program, in particular, the voluntary Residential Acoustical Treatment Program (RATP)
- Share data and information with the public
- Revise two of the noise mitigation measures in the existing NCP

Appendix A of this document provides a reference to noise fundamentals and terminology.

This chapter provides a historical perspective of the 14 CFR Part 150 at SAT (Section 1.1); a brief summary of the location and setting (Section 1.2); an introduction to 14 CFR Part 150 (Section 1.3); project roles and responsibilities (Section 1.4); and a completed copy of the FAA NEM review checklist (Section 1.5).

1.1 History of Noise and Land Use Compatibility at the San Antonio International Airport

The Aviation Department completed the first noise and land use compatibility study, via 14 CFR Part 150, for SAT in 1990, which included 11 strategies, or measures, designed to reduce noise exposure and mitigate noncompatible land uses. The establishment of a noise abatement officer staff position, a noise abatement advisory committee, a pilot advisory program, ongoing noise monitoring, and a procedure for the investigation and recording of noise complaints were all implemented as a result of the original NCP. A request for pilots to use noise abatement departure profiles was implemented, as was encouragement of airlines and cargo operators to utilize as many Stage 3 aircraft as possible (prior to the phase-out of all

¹ Title 14 of the Code of Federal Regulations (CFR) Part 150.

Stage 2 aircraft in excess of 75,000 lbs by December 31, 1999). The NCP measure that included restrictions of nighttime run-ups by aircraft to reduce the impact of noise during sensitive hours was also implemented. In terms of land use management techniques, the NCP recommendation to begin an acoustical treatment program for public buildings has been implemented, and the recommendation to develop a comprehensive land use policy to address future noncompatible land uses in the vicinity of the airport has also been partially implemented. One measure, which was not implemented, called for noise disclosure through a city ordinance for property located in specific noise-sensitive areas.

In 1996, SAT amended the previously approved NCP to account for the increase in engine run-up activity at the airport. The updated NCP called for the installation of a Ground Run-up Enclosure (GRE) to be used at all times by airport tenants performing engine maintenance operations and testing. A second measure addressed the need to install a permanent noise monitoring system. The FAA approved both of these additionally requested measures in May 1997.

The City completed a full update of the SAT NCP in 2001, which recommended 11 noise abatement measures and four noise mitigation measures (two remedial and two preventive) and resulted in a Record of Approval (ROA) issued by the FAA in September 2002 (Appendix B). The FAA approved four of the noise abatement measures and all four noise mitigation measures.

In 2009, the City updated the SAT NEM and also amended two noise mitigation measures to refer to the 2014 noise exposure map included in the 2009 NEM update. The FAA determined the 2009 update to the NEM to be in compliance with the applicable requirements effective May 28, 2009 (Appendix C).

The existing noise compatibility program is summarized fully in Section 2.

1.2 Project Location and Setting

The Airport is located in Bexar County less than 10 miles north of downtown San Antonio, which is in the southeastern portion of the state of Texas. The Airport is located within a built-up suburban environment with residential neighborhoods, parks and commercial/industrial centers nearby.

The Airport is within close proximity to a number of other aviation facilities. Two Air Force bases, Randolph Air Force Base (AFB) and Lackland AFB - Kelly Field Annex, are located within 11 miles of the airport –Lackland AFB - Kelly Field Annex located to the southwest and Randolph AFB located to the east. The nearest public airport is Stinson Municipal Airport, a general aviation facility, which is the FAA-designated reliever airport for SAT, and is located 12 miles south of SAT.

Primary access to the Airport is provided via U.S. Route 281, which is a north-south expressway linking the airport with the City of San Antonio, and Interstate 410, the north (east-west traffic) portion of the 410 Loop around the City of San Antonio.

Figure 1 shows the Airport and its surrounding area for reference.

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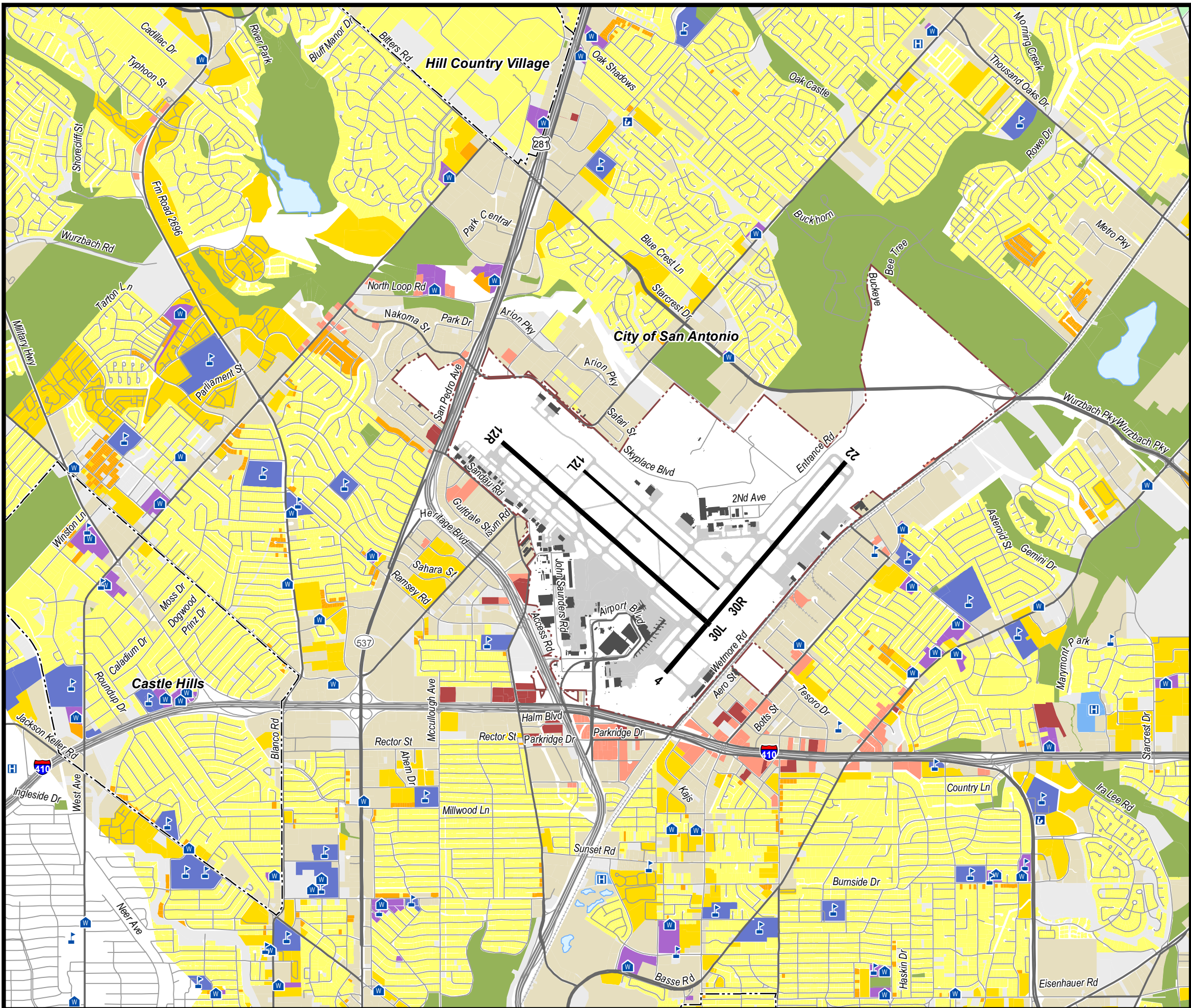
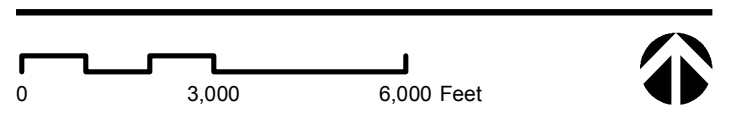


Figure: 1
San Antonio International Airport and
Surrounding Communities

- | | | |
|------------------------------|---------------------------|-------------------|
| Airport Boundary | Taxiway / Apron | Airport Buildings |
| Municipal Boundary | | |
| Highways | Major Roads | Local Roads |
| Railroad | | |
| Residential Use | Place of Worship | |
| Condo / Townhouse | Recreational / Open Space | |
| Multi-Family Residential Use | Agricultural | |
| Transient Lodging | Commercial Use | |
| School / Library | Industrial Use | |
| Hospital | Vacant / Undefined | |
| Water | | |
| School | Library | |
| Place of Worship | Hospital | |



1.3 14 CFR Part 150 Overview

14 CFR Part 150 sets forth a process for airport proprietors to follow in developing and obtaining FAA approval of programs to reduce or eliminate incompatibilities between aircraft noise and surrounding land uses. In establishing the requirements for the development of noise compatibility programs at airports, 14 CFR Part 150 prescribes specific standards and systems for:

- Measuring noise
- Estimating cumulative noise exposure
- Describing other means to assess the impacts of noise (including single aircraft event levels and cumulative levels)
- Coordinating Noise Compatibility Program development with local land use officials and other interested parties
- Documenting the analytical process used in developing the Compatibility program
- Submitting documentation to the FAA
- Providing for FAA and public review processes

As a result of applying these specific standards and systems, as stated earlier, 14 CFR Part 150 includes two formal submissions to the FAA: the NEM and the NCP.

1.3.1 Noise Exposure Map

The NEM documentation describes the airport layout and operation, aircraft-related noise exposure, land uses in the airport environs, and the resulting noise/land use compatibility situation. The aircraft noise exposure is expressed in decibels (dB) in terms of the Day-Night Average Sound Level (DNL).² Contours of equal DNL values, similar to topographic contours of equal elevation, form the basis for evaluating the noise exposure to the community. The NEM must address two time frames: (1) data representing the year of submission (the “existing conditions”) and (2) the fifth calendar year or later following the year of submission (the “forecast conditions”). The NEM also addresses how the forecast operations will affect the compatibility of the land uses depicted.

The primary objective is to describe the current and forecast conditions at the airport and the noise effects of the aircraft activity on the surrounding communities. While this description is normally processed into individual noise exposure maps, 14 CFR Part 150 requires more than a simple “map” to provide all the necessary information. The information required to provide the graphics and background for analysis include such tasks as:

- Collecting historical aviation activity data such as aircraft fleet mix, number and type of operations, aircraft departure weights, runway utilization
- Developing a forecast aircraft activity for a period at least five years in the future from the year representing the existing conditions
- Determining aircraft flight tracks and usage based on radar data, if available, or other source data
- Creating the necessary inputs to the FAA Integrated Noise Model using the average annual input conditions to include airport configuration, meteorological data, operations, etc.
- Obtaining approval for user-specified aircraft substitutions or profiles from the FAA (if used)

² Section 1.3.3 provides a brief overview of DNL. Noise metrics and noise effects are discussed in detail in Appendix A.

- Conducting supplemental noise measurements in accordance with 14 CFR Part 150, §A150.5, to better characterize any special noise effects on the community (optional)
- Collecting data from local jurisdictions to establish detailed land use data in the airport environs
- Estimating population data within the local area

Therefore, in addition to the graphics, an extensive effort is made to document, through tabulated information and text discussions, the noise environment due to aircraft activity at the airport now and in the future. Thus, the NEM documentation describes the data collection and analysis undertaken in development and graphic depiction of existing and future noise exposure resulting from aircraft operations and the land uses in the airport environs. During the process, the airport initiates and maintains contact with airport users and other interested stakeholders to get the various perspectives on the modeling inputs. After considering all stakeholder and public comments, the airport sponsor submits the NEM document to the FAA, and, subsequent to a thorough review, the FAA makes a determination of compliance with the 14 CFR Part 150 standards.

The year of submission for this update is 2014. Therefore, the existing conditions noise contours are for 2014 and the five-year forecast case contours are for 2019.

1.3.2 Noise Compatibility Program

The NCP is essentially a list of the actions the airport proprietor proposes to undertake to minimize existing and future noise/land use incompatibilities. This 2014 NEM Update includes a full review of the existing program measures and implementation status of each measure in Section 2. In addition, Section 7 of this document includes the proposed NCP revision that slightly modifies two noise mitigation measures for ease of future implementation using current and FAA-accepted NEM contours.

1.3.3 Day-Night Average Sound Level, DNL

In simple terms, DNL is the average noise level over a 24-hour period except that noises occurring at night (defined as 10:00 p.m. to 7:00 a.m.) are artificially increased by 10 dB. This weighting is intended to reflect the added intrusiveness of nighttime noise events attributable to the fact that community background noise levels decrease at night. More information on DNL (and other commonly used noise metrics) can be found in Appendix A.

14 CFR Part 150 requires airport noise studies to be based on computer-modeled DNL contour estimates depicted in terms of equal-exposure 65, 70 and 75 dB noise contours.

1.3.4 Community Annoyance

Numerous psychoacoustic surveys provide substantial evidence that individuals' reactions to noise vary widely for a given noise exposure level. However, since the early 1970's, researchers have determined, and subsequently confirmed, that a community's aggregate response is generally predictable and relates reasonably well to measures of cumulative noise exposure, such as DNL. Figure 2 shows the widely recognized relationship between environmental noise and the percentage of people "highly annoyed," annoyance being the key indicator of community response usually cited in this body of research.

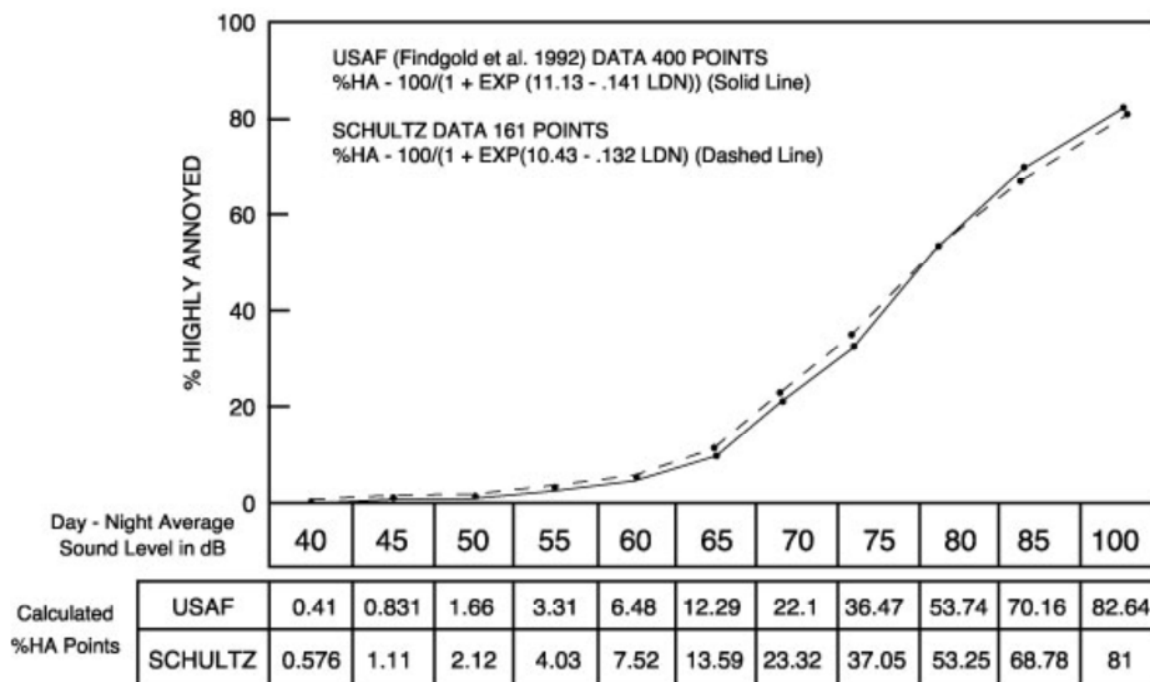


Figure 2 – Percentage of People Highly Annoyed

Source: Federal Interagency Committee on Noise, Vol. 2, Technical Report. "Federal Agency Review of Selected Airport Noise Analysis Issues". August 1992. (From data provided by USAF Armstrong Laboratory). pp. 3-6.

This relationship shows that 12 to 13 percent of the exposed population will be highly annoyed at DNL levels of 65 dB, and that percentage increases to 22 to 23 percent at DNL levels of 70 dB.

1.3.5 Noise/Land Use Compatibility Guidelines

The FAA, other Federal agencies, and several states have used the information on community reaction to noise to create guidelines for identifying the land uses that are compatible with which noise exposure levels – the more noise-sensitive the land use, the lower the noise exposure should be in order to achieve compatibility.

According to these FAA guidelines, all identified land uses, even the more noise-sensitive ones, normally are compatible with aircraft noise at DNL levels below 65 dB. The significance of this level is supported in a formal way by standards adopted by the U. S. Department of Housing and Urban Development (HUD). Part 51 of the Code of Federal Regulations indicates that areas exposed to DNL levels less than or equal to 65 dB are acceptable for HUD funding. Areas exposed to noise levels between 65 dB DNL and 75 dB DNL are "normally unacceptable," and require special abatement measures and review. Those at 75 dB DNL and above are "unacceptable" except under very limited circumstances.

FAA land use guidelines, as defined in 14 CFR Part 150 and reproduced here in Table 1, are unchanged since the previous Part 150 update and again used for this NEM update.

Table 1 – 14 CFR PART 150 Noise/Land Use Compatibility Guidelines

Source: 14 CFR Part 150, Appendix A, Table 1

Land Use	Yearly Day-Night Average Sound Level, DNL, in Decibels					
	<65	65-70	70-75	75-80	80-85	>85
Residential Use						
Residential other than mobile homes and transient lodgings	Y	N(1)	N(1)	N	N	N
Mobile home park	Y	N	N	N	N	N
Transient lodgings	Y	N(1)	N(1)	N(1)	N	N
Public Use						
Schools	Y	N(1)	N(1)	N	N	N
Hospitals and nursing homes	Y	25	30	N	N	N
Churches, auditoriums, and concert halls	Y	25	30	N	N	N
Governmental services	Y	Y	25	30	N	N
Transportation	Y	Y	Y(2)	Y(3)	Y(4)	Y(4)
Parking	Y	Y	Y(2)	Y(3)	Y(4)	N
Commercial Use						
Offices, business and professional	Y	Y	25	30	N	N
Wholesale and retail--building materials, hardware and farm equipment	Y	Y	Y(2)	Y(3)	Y(4)	N
Retail trade--general	Y	Y	Y(2)	Y(3)	Y(4)	N
Utilities	Y	Y	Y(2)	Y(3)	Y(4)	N
Communication	Y	Y	25	30	N	N
Manufacturing and Production						
Manufacturing general	Y	Y	Y(2)	Y(3)	Y(4)	N
Photographic and optical	Y	Y	25	30	N	N
Agriculture (except livestock) and forestry	Y	Y(6)	Y(7)	Y(8)	Y(8)	Y(8)
Livestock farming and breeding	Y	Y(6)	Y(7)	N	N	N
Mining and fishing, resource production and extraction	Y	Y	Y	Y	Y	Y
Recreational						
Outdoor sports arenas and spectator sports	Y	Y(5)	Y(5)	N	N	N
Outdoor music shells, amphitheaters	Y	N	N	N	N	N
Nature exhibits and zoos	Y	Y	N	N	N	N
Amusements, parks, resorts and camps	Y	Y	Y	N	N	N
Golf courses, riding stables, and water recreation	Y	Y	25	30	N	N

Key to Table 1 – Notes are presented on the following page

SLUCM: Standard Land Use Coding Manual.

Y(Yes): Land use and related structures compatible without restrictions.

N(No): Land use and related structures are not compatible and should be prohibited.

NLR: Noise Level Reduction (outdoor to indoor) to be achieved through incorporation of noise attenuation into the design and construction of the structure.

25, 30, or 35: Land use and related structures generally compatible; measures to achieve NLR of 25, 30, or 35 dB must be incorporated into design and construction of structure.

Notes for Table 1

The designations contained in this table do not constitute a Federal determination that any use of land covered by the program is acceptable or unacceptable under Federal, State, or local law. The responsibility for determining the acceptable and permissible land uses and the relationship between specific properties and specific noise contours rests with the local authorities. FAA determinations under 14 CFR Part 150 are not intended to substitute federally determined land uses for those determined to be appropriate by local authorities in response to locally determined needs and values in achieving noise compatible land uses.

1. Where the community determines that residential or school uses must be allowed, measures to achieve outdoor to indoor Noise Level Reduction (NLR) of at least 25 dB and 30 dB should be incorporated into building codes and be considered in individual approvals. Normal residential construction can be expected to provide a NLR of 20 dB, thus, the reduction requirements are often started as 5, 10, or 15 dB over standard construction and normally assume mechanical ventilation and closed windows year round. However, the use of NLR criteria will not eliminate outdoor noise problems.
2. Measures to achieve NLR of 25 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.
3. Measures to achieve NLR of 30 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.
4. Measures to achieve NLR of 35 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.
5. Land use compatible provided special sound reinforcement systems are installed.
6. Residential buildings require an NLR of 25.
7. Residential buildings require an NLR of 30.
8. Residential buildings not permitted.

1.4 Project Roles and Responsibilities

Several groups were involved in the development of the NEM update and NCP revision, including the San Antonio Airport System, the Federal Aviation Administration, and the consulting team.

1.4.1 San Antonio Airport System

As the “airport operator”, the SAAS has authority over the study elements and submission to the FAA. The SAAS retained a team of consultants to conduct the technical work required to fulfill the analysis and documentation requirements, and to assist in public outreach and consultation. Section 1.4.3 describes the composition of the consulting team and the general assignment of responsibilities among its members.

1.4.2 Federal Aviation Administration

The FAA responsibility includes funding assistance for the project as well as a review of the submission to determine that the technical work, consultation, and documentation comply with 14 CFR Part 150 requirements. The FAA must also approve the non-standard modeling requests, if any are proposed. Additionally, the FAA accepts or declines to accept the NEM update. Finally, the FAA approves or disapproves proposed revisions to the NCP measures as provided in Section 7. FAA involvement includes participation by staff from at least two organizations in the agency:

The *Texas Airports Development Office (ADO)* and/or *Airports-Southwest Region* evaluates and accepts (or does not accept) the NEM and supporting documentation in accordance with 49 U.S.C. Section 47503 (enabled by the Aviation Safety and Noise Abatement Act of 1979).

FAA headquarters, in particular the *Airport Planning and Environmental Division (APP-400)* and the *Office of Environment and Energy Noise Division (AEE-100)* reviews and approves (or disapproves) of non-standard data inputs to the FAA Integrated Noise Model (INM) and the revised NCP measures.

1.4.3 Consulting Team

The SAAS utilized one of their on-call planning contracts and contracted with the consulting firm of *Harris Miller Miller & Hanson Inc. (HMMH)* as a sub to URS Corporation (URS) to complete the

technical work required for the NEM update. HMMH has overall project management responsibility for the NEM update and NCP revisions, and is responsible for all noise-, land use- and airport plan-related technical elements. URS, as the prime contractor, is responsible for overall schedules, budgets and quality control. Ximenes and Associates (Ximenes) is responsible for the public outreach.

1.5 FAA NEM Checklist

The FAA has developed checklists for their internal use in reviewing NEM submissions. The FAA prefers that the Noise Exposure Map documentation include copies of the checklists. Table 2 presents a completed copy of the NEM checklist for assisting the FAA with their review.

Table 2 – 14 CFR Part 150 Noise Exposure Map Checklist

Source: FAA/APP, Washington, DC, March 1989; revised June 2005; reviewed for currency 12/2007³

14 CFR PART 150 NOISE EXPOSURE MAP CHECKLIST-PART I			
Airport Name: <u>San Antonio International Airport</u>	REVIEWER:		Supporting Pages/Review Comments
	Yes	No	
I. Submitting and Identifying the NEM:			
A. Submission properly identified:			
1. 14 C.F.R. Part 150 NEM?	X		Cover page, Section 1
2. NEM and NCP together?	X		Sections 2 and 7
3. Revision to NEMs FAA previously determined to be in compliance with Part 150?	X		Section 1.1
B. Airport and Airport Operator's name are identified?	X		Certification
C. NCP is transmitted by operator's dated cover letter, describing it as a Part 150 submittal and requesting appropriate FAA determination?	X		Cover letter
II. Consultation: [150.21(b), A150.105(a)]			
A. Is there a narrative description of the consultation accomplished, including opportunities for public review and comment during map development?	X		Section 8
B. Identification of consulted parties:			
1. Are the consulted parties identified?	X		Section 8.1
2. Do they include all those required by 150.21(b) and A150.105 (a)?	X		Section 8.1
3. Agencies in 2., above, correspond to those indicated on the NEM?	X		Section 8.1
C. Does the documentation include the airport operator's certification, and evidence to support it, that interested persons have been afforded adequate opportunity to submit their views, data, and comments during map development and in accordance with 150.21(b)?	X		Certification and Section 8
D. Does the document indicate whether written comments were received during consultation and, if there were comments that they are on file with the FAA regional airports division manager?	X		Section 8, Appendix I and Volume II
III. General Requirements: [150.21]			

³ http://www.faa.gov/airports/environmental/airport_noise/part_150/checklists/

14 CFR PART 150 NOISE EXPOSURE MAP CHECKLIST-PART I			
Airport Name: <u>San Antonio International Airport</u>	REVIEWER:		
	Yes	No	Supporting Pages/Review Comments
A. Are there two maps, each clearly labeled on the face with year (existing condition year and one that is at least 5 years into the future)?	X		Existing (2014) NEM is Figure 10; Forecast (2019) NEM is Figure 11
B. Map currency:			
1. Does the year on the face of the existing condition map graphic match the year on the airport operator's NEM submittal letter?	X		Cover letter; Figure 10 is 2014 Existing NEM
2. Is the forecast year map based on reasonable forecasts and other planning assumptions and is it for at least the fifth calendar year after the year of submission?	X		Cover letter; Figure 11 is 2019 five-year Forecast NEM; Appendix E
3. If the answer to 1 and 2 above is no, the airport operator must verify in writing that data in the documentation are representative of existing condition and at least 5 years' forecast conditions as of the date of submission?	N/A		
C. If the NEM and NCP are submitted together:	X		NEM Update and NCP Revision
1. Has the airport operator indicated whether the forecast year map is based on either forecast conditions without the program or forecast conditions if the program is implemented?	X		Forecast year map is based on NCP implementation as indicated in Section 2.
2. If the forecast year map is based on program implementation:			
a. Are the specific program measures that are reflected on the map identified?	X		Section 2
b. Does the documentation specifically describe how these measures affect land use compatibilities depicted on the map?	X		Tables 14 and 15 Figures 10 and 11
3. If the forecast year NEM does not model program implementation, the airport operator must either submit a revised forecast NEM showing program implementation conditions [B150.3 (b), 150.35 (f)] or the sponsor must demonstrate the adopted forecast year NEM with approved NCP measures would not change by plus/minus 1.5 DNL? [150.21(d)]	N/A		
IV. MAP SCALE, GRAPHICS, AND DATA REQUIREMENTS: [A150.101, A150.103, A150.105, 150.21(a)]			
A. Are the maps of sufficient scale to be clear and readable (they must be not be less than 1" to 2,000'), and is the scale indicated on the maps? (Note (1) if the submittal uses separate graphics to depict flight tracks and/or noise monitoring sites, these must be of the same scale, because they are part of the documentation required for NEMs.) (Note (2) supplemental graphics that are not required by the regulation do not need to be at the 1" to 2,000' scale)	x		1" to 3,000' scale of all map figures in main document with 1" to 2,000' scale maps of NEMs and flight tracks included in pocket folders
B. Is the quality of the graphics such that required information is clear and readable? (Refer to C. through G., below, for specific graphic depictions that must be clear and readable)	X		All figures
C. Depiction of the airport and its environs.			

14 CFR PART 150 NOISE EXPOSURE MAP CHECKLIST-PART I			
Airport Name: <u>San Antonio International Airport</u>	REVIEWER:		
	Yes	No	Supporting Pages/Review Comments
1. Is the following graphically depicted to scale on both the existing condition and forecast year maps:			
a. Airport boundaries	X		Figure 10 (2014) and Figure 11 (2019) NEMs
b. Runway configurations with runway end numbers	X		
2. Does the depiction of the off-airport data include?			
a. A land use base map depicting streets and other identifiable geographic features	X		Figures with geographic information delineate the boundaries and names of jurisdictions with planning and land use control authority in an area well beyond the DNL 65 dB
b. The area within the DNL 65 dB (or beyond, at local discretion)	X		
c. Clear delineation of geographic boundaries and the names of all jurisdictions with planning and land use control authority within the DNL 65 dB (or beyond, at local discretion)	X		
D. 1. Continuous contours for at least DNL 65, 70, and 75 dB?	X		All contour figures
2. Has the local land use jurisdiction(s) adopted a lower local standard and, if so, has the sponsor depicted this on the NEMs?		X	
3. Based on current airport and operational data for the existing condition year NEM, and forecast data representative of the selected year for the forecast NEM?	X		Certification letter and Section 4.2 presents existing and forecast operational data
E. Flight tracks for the existing condition and forecast year timeframes (these may be on supplemental graphics which must use the same land use base map and scale as the existing condition and forecast year NEM), which are numbered to correspond to accompanying narrative?	X		Figures 6 through 9 show modeled arrival and departure flight tracks and density plots
F. Locations of any noise monitoring sites (these may be on supplemental graphics which must use the same land use base map and scale as the official NEMs)	X		Figures 6, 7, 10, 11, and 12 show permanent noise monitor locations which will be at required scale
G. Noncompatible land use identification:			
1. Are noncompatible land uses within at least the DNL 65 dB noise contour depicted on the map graphics?	X		Depicted on Figure 10 (2014) and Figure 11 (2019) NEMs. Section 5.2 and Table 13
2. Are noise sensitive public buildings and historic properties identified? (Note: If none are within the depicted NEM noise contours, this should be stated in the accompanying narrative text.)	X		
3. Are the noncompatible uses and noise sensitive public buildings readily identifiable and explained on the map legend?	X		
4. Are compatible land uses, which would normally be considered noncompatible, explained in the accompanying narrative?	X		Section 5.2.2, Tables 14 and 15, and Figure 13
V. NARRATIVE SUPPORT OF MAP DATA: [150.21(a), A150.1, A150.101, A150.103]			

14 CFR PART 150 NOISE EXPOSURE MAP CHECKLIST-PART I			
Airport Name: <u>San Antonio International Airport</u>		REVIEWER:	
	Yes	No	Supporting Pages/Review Comments
A. 1. Are the technical data and data sources on which the NEMs are based adequately described in the narrative?	X		Section 4 presents aircraft operations data and other modeling inputs; Appendices D, E, and H
2. Are the underlying technical data and planning assumptions reasonable?	X		
B. Calculation of Noise Contours:			
1. Is the methodology indicated?	X		Section 4; INM 7.0d
a. Is it FAA approved?	X		Section 4; INM 7.0d
b. Was the same model used for both maps? (Note: The same model also must be used for NCP submittals associates with NEM determinations already issued by FAA where the NCP is submitted later, unless the airport sponsor submits a combined NEM/NCP submittal as a replacement, in which case the model used must be the most recent version at the time the update was started.)	X		
c. Has AEE approval been obtained for use of a model other than those that have previous blanket FAA approval?	N/A		
2. Correct use of noise models:			
a. Does the documentation indicate, or is there evidence, the airport operator (or its consultant) has adjusted or calibrated FAA-approved noise models or substituted one aircraft type for another that was not included on the FAA's pre-approved list of aircraft substitutions?	X		Letter requesting FAA approval and FAA response for aircraft substitutions See Appendices F and G
b. If so, does this have written approval from AEE, and is that written approval included in the submitted document?	X		
3. If noise monitoring was used, does the narrative indicate that Part 150 guidelines were followed?	X		Section 6.1
4. For noise contours below DNL 65 dB, does the supporting documentation include an explanation of local reasons? (Note: A narrative explanation, including evidence the local jurisdiction(s) have adopted a noise level less than DNL 65 dB as sensitive for the local community(ies), and including a table or other depiction of the differences from the Federal table, is highly desirable but not specifically required by the rule. However, if the airport sponsor submits NCP measures within the locally significant noise contour, an explanation must be included if it wants the FAA to consider the measure(s) for approval for purposes of eligibility for Federal aid.)	N/A		
C. Noncompatible Land Use Information:			
1. Does the narrative (or map graphics) give estimates of the number of people residing in each of the contours (DNL 65, 70 and 75, at a minimum) for both the existing condition and forecast year maps?	X		Section 5.2 Table 13

14 CFR PART 150 NOISE EXPOSURE MAP CHECKLIST-PART I			
Airport Name: <u>San Antonio International Airport</u>	REVIEWER:		
	Yes	No	Supporting Pages/Review Comments
2. Does the documentation indicate whether the airport operator used Table 1 of Part 150?	X		Section 1.3.5
a. If a local variation to table 1 was used:			
(1) Does the narrative clearly indicate which adjustments were made and the local reasons for doing so?	N/A		
(2) Does the narrative include the airport operator's complete substitution for table 1?	N/A		
3. Does the narrative include information on self-generated or ambient noise where compatible or noncompatible land use identifications consider non-airport and non-aircraft noise sources?	N/A		
4. Where normally noncompatible land uses are not depicted as such on the NEMs, does the narrative satisfactorily explain why, with reference to the specific geographic areas?	N/A		
5. Does the narrative describe how forecast aircraft operations, forecast airport layout changes, and forecast land use changes will affect land use compatibility in the future?	X		Section 5.2
VI. MAP CERTIFICATIONS: [150.21(b), 150.21(e)]			
A. Has the operator certified in writing that interested persons have been afforded adequate opportunity to submit views, data, and comments concerning the correctness and adequacy of the draft maps and forecasts?	X		Certification
B. Has the operator certified in writing that each map and description of consultation and opportunity for public comment are true and complete under penalty of 18 U.S.C. Section 1001?	X		

2 EXISTING NOISE COMPATIBILITY PROGRAM

The City has realized great results from implementation of their noise compatibility planning efforts over the past 20 years at SAT. The first NCP was submitted to the FAA in 1990 with 11 of 11 recommended measures approved by the FAA in 1991. The first NCP included the establishment of a noise abatement officer staff position at SAT and a procedure for the investigation and recording of noise complaints. In addition the first NCP included measures to request pilots use noise abatement departure procedures when departing SAT, to encourage airlines and cargo operators to utilize Stage 3 (newer technology and quieter) aircraft, and to restrict aircraft operators from conducting engine run-up activities on the ground at SAT during the nighttime hours.

In 1996, the City amended the NCP to include measures recommending the installation of a Ground Run-up Enclosure (GRE) to reduce noise from increased aircraft run-up activity at SAT and the installation of a noise and operations monitoring system (NOMS). In 2001, the City completed a full update of the NCP in which four additional noise abatement measures to further reduce aircraft noise exposure in the community and four noise mitigation measures to mitigate noise in areas where the noise abatement measures did not reduce the exterior noise levels to below 65 dB in terms of the Day-Night Average Sound Level or DNL.

As a result of these noise compatibility measures, the City has greatly reduced the size of the DNL 65 dB contours at SAT as shown in the recent NEM updates. For example, the 2009 NEM update reported a 40% decrease in the size of the DNL 65 dB contour as compared to the 2004 NEM. Since the airport has been tracking the DNL 65 dB contour through the 14 CFR Part 150 process, the size of the DNL 65 dB contour has gone from over 8,000 acres in size to about 2,500 acres, which is approximately a 70% decrease in size. The 2014 NEM provided in this report has a DNL 65 dB contour that is less than one-third the size of the same contour representing the aircraft noise exposure at SAT in 1998.

The City continues to provide sound insulation to noise-sensitive buildings for those properties remaining within the DNL 65 dB contour. From the beginning of the program through the funds currently available the City expects to have provided acoustical treatment to a total of 10 schools, 19 religious facilities, 1 library, 2 nursing homes, 1,423 homes and 216 apartment units through their sound insulation programs.

Based on the review and history of noise compatibility at SAT, the existing NCP includes the 11 noise abatement measures and four noise mitigation measures as provided in the 2001 NCP (approved in 2002 ROA, Appendix B) as amended in the 2009 NEM update. The noise abatement (NA) and noise mitigation (NM) measures are provided below along with the FAA approval and City implementation status at the time of the submittal of this NEM update to the FAA.

2.1 NA-1: Conduct live tests of noise abatement departure profiles

This measure recommended the airport conduct flight tests, monitored with noise measurement equipment, to assist in the identification of flight procedures, particularly noise abatement departure procedures (NADP), to minimize single-event noise levels.

FAA approval status: Disapproved since noise departure profiles have been developed and recommended to airlines for voluntary use in FAA Advisory Circular (AC) 91-53a.

Implementation status: Completed in 2001 when the city conducted tests of the noise abatement profiles provided in AC 91-53a at SAT and concluded that many airlines operating at SAT are using noise abatement departure procedures consistent with AC 91-53a with no measureable difference between the noise abatement procedures (close-in or distant). Therefore, further guidance for the use of noise abatement procedures at SAT is unwarranted.

2.2 NA-2: Pursue additional voluntary noise abatement procedures to further reduce noise levels of aircraft operations

This measure recommended the development of additional voluntary flight procedures designed to further reduce noise levels in the SAT environs, which include: (1) departure profiles designed to increase the climbing performance of aircraft using thrust/flaps management techniques, and (2) arrival procedures designed to prevent aircraft from turning onto a short final approach over noise-sensitive areas close to SAT.

FAA approval status: Approved the arrival procedure (2 above) portion of the measure and disapproved the departure procedure (1 above) portion.

Implementation status: No action to date. However, the aircraft manufacturers and operators have improved climb performance on departure and descent performance on arrival as these procedures reduce fuel consumption, emissions and noise, and increase the useful lifespan of the aircraft. SAT has benefitted by these industry efforts.

2.3 NA-3: Establish a preferential runway use program and enhance its effectiveness by extending existing runways

This measure recommended the establishment of a preferential runway use program that: (1) minimizes departures from Runways 12L and 12R, (2) minimizes arrivals to Runways 30L and 30R, (3) extends Runway 3/21 to the northeast, and (4) extends Runway 12R/30L to the northwest. The result of these measures would have allowed the increase in use of Runway 3/21 (now called Runway 4/22) which would reduce the number of overflights over noise sensitive land uses located along Runways 12L/30R and 12R/30L.

FAA approval status: Disapproved for air traffic efficiency and capacity reasons as well as not being consistent with purposes of Part 150 (i.e., not for noise abatement purposes).

Implementation status: Partially completed as Runway 4/22 (previously designated 3/21) was extended by 1,000 feet in 2013.

2.4 NA-4: For departures from Runway 3, establish a departure corridor that places aircraft over compatible land uses east of Wetmore Road to the extent possible

This measure recommended the use of a compatible land use departure corridor to reduce the number of people exposed to noise from aircraft departures from Runway 3.

FAA approval status: Disapproved for airspace restrictions due to the location of Randolph Air Force Base and a potential reduction in air traffic efficiency and flexibility.

Implementation status: No action to date based on FAA issues identified and reported above.

2.5 NA-5: For those times that Runway 21 must be used for departure, establish a departure corridor that places aircraft over the Highway 281 corridor to the extent possible

Similar to NA-4, this measure recommended a departure corridor for Runway 21 over more compatible land uses.

FAA approval status: Disapproved pending additional information.

Implementation status: Evaluated in 2002 as part of the Environmental Analysis (EA) process for the extension of Runway 3/21. No new departure corridor established with the extension of Runway 3/21 (now designated 4/22) in 2014.

2.6 NA-6: Incorporate the findings and recommendations of the engine run-up study into the FAR Part 150 Noise Compatibility Program (NCP)

This measure resulted in the construction and successful use of a ground run-up enclosure (GRE) for jet aircraft to use for all high power maintenance run-ups.

FAA approval status: Approved including the installation of the GRE.

Implementation status: Completed in 2002 through the installation of the GRE, which can accommodate aircraft up to the size of a Boeing 747, on Airport property near the intersection of Runways 12L/30R and 3/21 (now 4/22) and the adoption of the GRE operation plan. The plan requires jet aircraft to use the GRE unless it is occupied by another aircraft and time is of the essence. Analysis undertaken as part of the 2009 NEM update indicates that this measure results in a noise level reduction of 16 dB at 400 feet from the structure.

2.7 NA-7: Install an aircraft noise and operations monitoring system to track the use of departure corridors and departure profiles

This measure recommended the installation of an aircraft noise and operations monitoring system (NOMS) to monitor SAT aircraft operations and noise.

FAA approval status: Approved.

Implementation status: Completed this measure through the installation and subsequent use of the NOMS, which includes a flight track and aircraft identification data acquisition system, 12 noise monitoring terminals dispersed throughout the nearest SAT communities, and an integrated and correlated database. The current system is called “EnvironmentalVue”⁴.

⁴ EnvironmentalVue is the noise and operations monitoring system (NOMS) as provided and supported by Exelis.

2.8 NA-8: Enhance pilot awareness of noise-sensitive areas and noise abatement procedures by providing information for Jeppesen charts, airline pilot manuals, and fixed based operator information

This measure was designed to effectively convey to aircraft pilots the location of noise-sensitive areas around the airport and noise abatement procedures in use at the airport through traditional pilot awareness measures, such as Jeppesen plates and airport signage.

FAA approval status: Approved.

Implementation status: Completed, however, the FAA required the removal of the airfield signs as they were determined to be “nonstandard” per certification (14 CFR Part 139). The City expects to reinstall the NADP signs to comply with FAA regulations.

2.9 NA-9: Investigate the use of noise barriers along Airport boundaries at runway ends to reduce the effects of takeoff roll noise

This recommended measure was designed to allow for the study of noise barriers which reduce the noise generated by aircraft operating on the ground, such as during taxiing, initial departure roll, use of reverse thrust on landing, and engine operation at the gate.

FAA approval status: Disapproved pending additional information.

Implementation status: No action to date. Further information is required from the FAA to fund such a project at SAT.

2.10 NA-10: Encourage Congress to seek stricter aircraft noise standards, particularly regarding a phase-out schedule for aircraft originally manufactured as Stage 2 that have been modified or are operated to meet Stage 3 noise standards

This measure recommended that the City encourage Congress to restrict aircraft noise levels through legislation, which would benefit SAT by developing a timeline for the phase out of hush-kitted Stage 3 aircraft.

FAA approval status: Disapproved citing minimal benefit at a high cost to the industry.

Implementation status: Not implemented, however, due to high operating costs and the continued aging of manufactured Stage 2 aircraft certified as Stage 3, these aircraft are almost completely out of the U.S. fleet.

2.11 NA-11: Encourage the FAA to develop a phase-out schedule for FAR Part 36 Stage 2 aircraft weighing less than 75,000 pounds

This measure recommended that the FAA develop a phase-out schedule for Stage 2 aircraft weighing less than 75,000 pounds.

FAA approval status: Disapproved, but recommended a voluntary coordination with the aircraft operators at SAT.

Implementation status: Completed as the FAA Modernization and Reform Act of 2012 (49 USC 40101) included the prohibition of operating Stage 2 aircraft weighing less than 75,000 pounds after December 31, 2015.

2.12 NM-1: Continue the Residential Acoustical Treatment Program within the Noise Mitigation Boundary shown in the San Antonio International Airport 2014 Noise Exposure Map (NEM)

This measure provides the continuation of the successful Residential Acoustic Treatment Program (RATP) that improves the noise compatibility at SAT by mitigating aircraft noise to residents exposed to DNL 65 dB and greater.

FAA approval status: Approved as part of the 2009 acceptance letter for the Noise Exposure Map update.

Implementation status: Ongoing with the City expecting to have completed treatment on a total of 1,423 homes and 216 apartment units from the beginning of the program through the completion of homes using the funds currently allocated. The City expects to continue this program using updated NEM contours for the noise mitigation boundary.

2.13 NM-2: Continue to provide acoustical treatment for schools and religious facilities that have not yet received such treatment and are within the Noise Mitigation Boundary shown in the San Antonio International Airport 2014 Noise Exposure Map (NEM)

This remedial mitigation measure was a continuation of previous NCP programs that provided acoustical treatment to noise-sensitive facilities around SAT. Two schools, one religious facility and one group care home remain available for potential treatment, per the FAA-approved 2014 NEM.

FAA approval status: Approved as part of the 2009 acceptance letter for the Noise Exposure Map update.

Implementation status: Ongoing as funding is available and if the property owners are interested. To date the City has provided acoustical treatment to 10 schools, 19 religious facilities, 1 library, and 2 nursing homes.

2.14 NM-3: Study the mechanism for and impact of incorporating noise exposure acknowledgements into real estate transactions

This measure recommended the evaluation of a mandatory disclosure notice or voluntary agreements with local realtors. Real estate disclosure notices can be an effective means of transferring an acknowledgement of potential impacts from aircraft overflights in an area surrounding an airport. Real estate disclosure effectively incorporates information about aircraft overflights, the location of the property in relation to the airport or flight patterns, and potential affects in either a legal document (through an easement) or in real estate marketing materials.

FAA approval status: Approved for further study.

Implementation status: No action to date. However, the City has determined that the Texas Real Estate Commission (TREC) is responsible for regulation modifications of the kind suggested in this measure. The TREC must deem the noise disclosure allowable under state regulation before a city within the State of Texas can impose such disclosures on the seller. The next step is to contact the TREC to determine the process required to enable cities to impose, at their discretion, such a disclosure of aircraft noise with real estate transactions near SAT.

2.15 NM-4: Study mechanisms to maintain compatible land uses in current and proposed flight corridors and to prevent development of additional incompatible noise sensitive land uses in areas exposed to DNL 65 and higher

This measure included working closely on an ongoing basis with the City of San Antonio regarding the Comprehensive Plan and overlay zoning.

FAA approval status: Approved with a reminder that the airport is owned and operated by the City of San Antonio and, as such, has the obligation to effectively prohibit introduction of new incompatible land uses.

Implementation status: Implemented in 2010 via the San Antonio International Airport Vicinity Land Use Plan, which requires the Aviation Department to review and recommend for approval/disapproval requests for rezoning within the Airport Awareness Zone. Notations on plats, restrictive covenants, and property acquisition provided in the Land Use Plan also protect airport operations. A corridor overlay district enhances the area's urban design through additional development and design standards.

3 LAND USE

The San Antonio International Airport is located eight miles northeast of the downtown area and in 2010 was the subject of a detailed area land-use planning study by the City of San Antonio⁵. In that effort, a study area was developed encompassing land that would be subject to the City's land-use jurisdiction granted under state law to municipalities containing airports. The authority extends 1.5 miles out from a runway centerline and 5 miles from a runway end. Consequently, the planning study area of approximately 45.5 square miles, bounded generally by Huebner, Bitters, Jones Maltsberger, and Loop 1604 on the north, O'Connor, Bulverde, Nacogdoches and IH 35 on the east, Fort Sam Houston, Harry Wurzbach, Loop 410, Broadway, Alamo Heights city limits, US 281 and Loop 410 on the south, and Lockhill-Selma, and NW Military Hwy on the west was used for that study. This study area is almost entirely within the city limits; however, there are certain unincorporated areas of Bexar County included as well.

The development within the planning area occurred primarily between 1951 and 1990. Loop 410, constructed in 1963-1964, greatly influenced the direction of growth in San Antonio. The areas immediately north and south of Loop 410 were annexed between 1951 and 1960. The areas eventually became the neighborhoods of Harmony Hills, Countryside, Churchill Bluffs, Devonshire Place and Northeast Park north of Loop 410, and North Alamo Heights, East Terrell Hills and Wilshire Park south of Loop 410. The balance of the area north of Bitters, Starcrest and Wurzbach Parkway was annexed between 1960 and 1990.

The planning area is characteristic of America's first- and second-tier suburban neighborhoods. The vast majority of these neighborhoods is fully built out, and has housing stock that is at least 30 years old and beginning to age. These areas generally enjoy higher rates of homeownership and educational attainment levels. They also are experiencing an increase in the older population, a decrease in household size, and the diversification of ethnicity. Noise-sensitive residential and public land uses are located throughout the study area.

The airport is situated in the northeast quadrant of the intersection of two major freeways, US-281 (Walter McAllister Freeway) and I-410 (Northeast Loop), each of which have frontage roads. Consequently, the land uses immediately adjacent to the south-western, southern and south-eastern boundaries of the airport are generally light industrial or commercial uses, particularly business supporting and enhancing the airport (e.g., car rental facilities, parking operations, hotels, etc.).

Northeast of the airport is an area which is predominantly single-family residential, with some multi-family residential uses located on corridors. Conventional subdivisions are the dominant residential development pattern; however, some large lot residential estates were built northeast of the airport near Classen and Stahl Roads. Neighborhood commercial uses are found on the arterials with more intense community and regional commercial at the major intersections.

Further to the east of the airport, between Wetmore and Broadway are numerous business park/industrial uses, many situated to take advantage of the adjacent Union Pacific railroad tracks. The 2010 vicinity land use plan also identified the intersection of Wetmore and Loop 410 as a potential location for a future commuter rail station.

The area southeast of their airport, beyond (east of) Broadway contains single-family residential neighborhoods, with some multi-family residential uses located on corridors. The Salado Creek

⁵ *San Antonio International Airport Vicinity Land Use Plan*, City of San Antonio, Department of Planning and Development Services in consultation with the Department of Aviation, May 2010.

Greenway links many of these neighborhoods and park assets. Several estate lot subdivisions such as Forest Oak are found north of Loop 410 and east of Nacogdoches Rd. This area lies within the Northeast Loop planning area.

The areas to the south and southwest of the Airport beyond the frontage roads of US-281 and I-410 are within the Greater Dellview and North Central planning areas. As with the southeastern area, the frontages along US-281 and I-410 contain more intensely developed land uses (e.g., commercial, office, and transient lodging) transitioning to noise-sensitive single-family uses as distance from the highway and arterial corridors increases.

Northwest of the airport the land uses are somewhat less intensely developed with larger areas of open space. Two forks of the Salado Creek bisect this area. The Upper Salado Creek Greenway, Walker Ranch Park and Hardberger Park (development in progress) serve community and regional parks, and recreational needs. Existence of these parks in the plan area, especially Salado Creek's location which is immediately north of the airport, is vital in terms of maintaining the open space character of this area and preventing any encroachment of noncompatible uses around the airport. Residential uses are primarily single-family with large multi-family developments primarily north of West Avenue and along Blanco Road. Most of the single-family residential subdivisions feature mature tree canopies and tree-lined streets.

To create the GIS base map layers, data were collected and processed from the City of San Antonio GIS Division and Department of Aviation. Data included the latest San Antonio Planning and Zoning data, existing sound mitigation program boundaries, and airport layout information. The Airport Layout Plan layers include the airport property line, taxiway, runway information and airport buildings.

Land use data for the study area were developed from a number of sources. Existing zoning or land use maps were researched and updated to provide applicable information. The San Antonio GIS Division database was the main source of land use information for the study area.

Noise-sensitive land use locations were field-verified, as identified per 14 CFR Part 150 guidelines, within the boundaries of the expected DNL 65 dB contours. Land use data were developed out to 60 dB DNL without field verification. Land use data development within the 60 dB DNL and within San Antonio or unincorporated Bexar County is based on existing aerial photography in conjunction with the City of San Antonio GIS Division datasets.

Existing land uses were grouped in the following nine categories: Single-family Residential, Multi-family Residential, Commercial, Manufacturing, Public/Government Use, Education, Parks/Cemeteries/Recreation, Transportation and Vacant. The single-family category includes all types of detached residential units, whereas the multi-family category includes all types of attached dwelling units, including duplexes, townhouses, and apartments. The commercial category includes all types of retail and business uses, as well as offices. The manufacturing use classification includes manufacturing and warehousing. The public/government use classification includes uses such as the San Antonio libraries, places of worship, City- or County-owned properties used for governmental purposes, and public assembly. The parks/cemeteries/recreation category includes all publicly or privately owned lands held for park, conservation, or golf course uses and cemeteries. The transportation classification is a factor of activity and location comprising all properties dedicated to transportation resources and including properties owned by the SAAS for airport-related purposes.

3.1 Jurisdiction and Zoning around the Airport

Zoning and subdivision regulations are in effect for the entire study area. Existing zoning information was readily available for the study area. The residential areas in the vicinity of the Airport are currently zoned in both single-family and multi-family residential categories with zoning districts of variable densities ranging from those that would permit up to seven to eleven dwelling units per acre (R-6/R-5/R-4 Residential Single-Family) to multi-family districts allowing greater development intensity, including up to 33 dwelling units per acre (MF-33 Multi-Family).

3.2 Compatible Land Use Analysis

Since land use outside of DNL 65 dB is considered “compatible” for purpose of 14 CFR Part 150, the analysis within DNL 60 to 65 dB only included an inventory of the estimated population and noise-sensitive locations. The land use compatibility guidelines contained in 14 CFR Part 150, which are based on empirical studies of the correlation between reported levels of annoyance and levels of cumulative noise exposure, provide a description of the types of land uses that are most “sensitive” to airport related noise. For example, residential uses (including mobile home parks and transient lodgings), schools, and amphitheaters are considered noncompatible with noise levels of DNL 65 dB or greater. Other uses, including hospitals, nursing homes, churches and auditoriums, are also considered noncompatible within levels of DNL 65 dB or greater.

3.3 Land Use Measures

Planning and land use regulatory authority for Texas is authorized by state statute, which requires comprehensive planning as a prerequisite for the establishment of land use regulations. As a general matter, planning and zoning in Texas may only be undertaken by incorporated municipalities (i.e., cities as opposed to counties); however, as noted above cities may exercise limited extra-territorial land use jurisdiction. San Antonio has a planning commission that prepares and adopts the comprehensive plan and area development plans supported by staff members who administer the land use regulations. The City Council adopts the comprehensive plan and land use regulations. The City Council is also responsible for final decisions on zoning map amendments, although the planning commission has final approval authority for subdivisions.

3.3.1 Sound Insulation

One of the recommended and approved measures of the 2009 NCP (NM-1, summarized in Section 2.12) provided that the SAAS continue and expand its Residential Acoustical Treatment Program (RATP). The 2002 NCP initially recommended a pilot RATP; subsequently based upon favorable results the 2009 NCP recommended its expansion. The program initially focused on those noncompatible residential uses within the DNL 70 dB and higher noise contours. It was expanded as part of the 2009 NCP to include residential uses in the DNL 65 dB contour.

The objective of the RATP is to provide interior noise levels compatible with normal indoor activities. Sound attenuation treatments typically include acoustical windows, doors, and other treatments to reduce the penetration of aircraft noise into the living spaces. Participation in the RATP is voluntary for those residential units inside the FAA-approved DNL 65 dB contour. The goals of the program are to provide an interior aircraft noise environment not to exceed DNL 45 dB indoors and provide a noticeable improvement, which is at least a 5-dB increase in noise level reduction of the structure. Upon completion of the construction and verification of goal attainment, the soundproofed residential units are then considered compatible with the aircraft noise exposure levels.

The program currently includes five groupings of residences by neighborhood. With the current allocation of funds, the City will have treated a total of 1,423 dwellings and 216 apartment units since the beginning of the on-going RATP.

4 DEVELOPMENT OF NOISE CONTOURS

The DNL contours were prepared using the most recent release of the FAA's INM, Version 7.0d. The INM requires inputs in the following categories:

- Physical description of the airport layout
- Number and mix of aircraft operations
- Day-night split of operations (by aircraft type)
- Runway utilization rates
- Prototypical flight track descriptions
- Flight track utilization rates

The model was used without any unauthorized "calibration" or "adjustment." Contour input was developed using RealContours™, a proprietary program that provides greater detail to the modeling process by improving the precision of modeling individual aircraft flight tracks. RealContours™ converts aircraft flight track data into FAA's INM input data, runs the INM, and provides the INM results based on the modeling of each individual flight track and is further described in Section 4.5.

4.1 Airport Physical Parameters

The SAT airfield, located in Bexar County approximately 10 miles north of downtown San Antonio, TX, consists of three runways, two of which are parallel, and one "crosswind" runway that is roughly perpendicular to the set of parallel runways.

Each end of the runways is designated by a number that, with the addition of a trailing "0", reflects the magnetic heading of the runway to the nearest 10 degrees, as seen by the pilot. Thus, the crosswind runway, 4-22, has the designation "4" at the south end of the airport looking northeast, indicating that it is aligned on a magnetic heading of approximately 040°, while the opposite end of the same piece of pavement has the designation "22" indicating its orientation on an approximate heading of 220°. Runway 4-22 was recently extended to 8,505 feet long by 150 feet wide. The two parallel runways, 12L-30R and 12R-30L, are oriented on approximate magnetic headings of 120° and 300° and are 5,519 feet long by 100 feet wide and 8,502 feet long by 150 feet wide, respectively. The parallel runways are distinguished from each other with letter endings "L", meaning left, and "R", meaning right, as seen by the pilot.

Runway length, runway width, instrumentation and declared distances may affect which aircraft might use a particular runway and under what conditions, and therefore how often a runway would be used relative to the other runways at the airport.

Figure 3 presents the existing SAT airport layout and Table 3 provides the actual coordinates and parameters for each runway end. Helicopter operations were modeled from Taxiway K, designated as "H01" for modeling purposes, as indicated by discussions with the FAA Air Traffic Control and the Fixed Base Operators. No changes to the airfield are expected within the five-year time frame for this project.



Source: FAA, digital Terminal Procedures, effective June 26, 2014 to July 24, 2014

Table 3 – Runway Details

Source: FAA Form 5010, effective June 26, 2014 to July 24, 2014

Runway	Latitude (dd-mm-ss)	Longitude (dd-mm-ss)	Latitude (degrees)	Longitude (degrees)	Elevation (ft, MSL)	Displaced Threshold (feet)	Glide Slope (degrees)	Threshold Crossing Height (feet)	Magnetic Orientation (degrees)*
4	29° 31' 23.6418"N	98° 28' 11.6574"W	29.523234N	98.469905W	786	0	3	79	036
12L	29° 32' 25.0722"N	98° 28' 39.7128"W	29.540298N	98.477698W	797	0	3	40	127
12R	29° 32' 33.8856"N	98° 29' 07.9470"W	29.542746N	98.485541W	809	0	3	75	127
22	29° 32' 27.3912"N	98° 27' 08.7696"W	29.540942N	98.452436W	754	0	3	85	216
30R	29° 31' 48.7848"N	98° 27' 53.0166"W	29.530218N	98.464727W	779	0	3	60	307
30L	29° 31' 38.0022"N	98° 27' 55.9938"W	29.527223N	98.465554W	778	0	3	82	307
H01	29° 32' 28.5468"N	98° 29' 10.1826"W	29.541263N	98.486162W	809	0	3	N/A	N/A

Note: *Magnetic Orientation from the FAA's Airport Diagram, rounded to the nearest degree, current 6/26/2014 to 7/24/2014.

4.2 Airport Operations

14 CFR Part 150 and its table of noise/land use compatibility guidelines require the calculation of “yearly DNL” values. That is, the daily noise exposure (in DNL) averaged over a year – usually a calendar year. The INM produces these values of exposure utilizing an “average annual day” of airport operations. In this NEM update, calendar year 2012⁶ SAT aircraft activity was used as the baseline to develop the average annual day’s operations for 2014. Adjustments were made to the 2012 operations data to reflect the FAA Terminal Area Forecast (TAF)⁷ in 2014 and 2019. Further adjustments and supplementation to the 2012 dataset were made to ascertain city-pair groupings⁸ and thus stage-lengths⁹ for modeling.

4.2.1 Development of 2014 Operations

The 2014 operations and fleet mix information were developed from several sources. Operations were obtained from the NOMS flight tracking data, previously described in Section 2.7 for the time period of January 1, 2012 through December 31, 2012. These 12 months of data were then adjusted to represent annual 2014 operations by scaling to the TAF according to the four categories defined by the FAA: Air Carrier, Air Taxi, General Aviation and Military.¹⁰ See Table 4.

The NOMS flight tracking data were supplemented with data from the U.S. Department of Transportation (DOT) Bureau of Transportation Statistics (BTS) Airline On-Time Performance Data¹¹, the FAA’s Aircraft Registration Database¹², and *FlightAware* aircraft operational data¹³, all of which were used to augment and complete missing data fields. General aviation aircraft were assigned representative INM model types based on the flight plan information filed with each flight in the NOMS database. To assist in the scaling of these data to the TAF, each operation was associated with one of the four FAA categories: Air Carrier, Air Taxi, Military and General Aviation. Operations were also scaled such that the modeled arrival operations match the modeled departure operations by aircraft type. The modified NOMS data were used directly in the modeling process with RealContours™, as described in Section 4.5, to categorize individual operations by operator, aircraft type, and time of day (daytime or nighttime) for both arrivals and departures.

The NOMS dataset contained information regarding military operations. These data were further validated through discussions with the local FBO holding the military re-fueling contract resulting in the inclusion of a small number of operations and flight tracks for aircraft having no civilian counterpart.

⁶ Year 2012 represents the last calendar year in which the main runway (12R-30L) was not closed for maintenance during multiple months.

⁷ FAA Terminal Area Forecast, Published February 2014, accessed 06/17/2014.

⁸ The FAA’s Integrated Noise Model (INM) uses city pairs, which are the origin and destination cities of the SAT aircraft operations, to estimate aircraft weight on departure.

⁹ Stage length is the category of distance as determined by the city pairs, which is used in the FAA’s Integrated Noise Model (INM) as a surrogate for aircraft weight on departure.

¹⁰ These categories are defined in Chapter 9 of FAA Order 7210.3. The most current version of this order is available at http://www.faa.gov/air_traffic/publications/

¹¹ <http://www.transtats.bts.gov/>. Though only select airlines are required to report operations, this provided supplementary information for certain flights and various quality control checks.

¹² http://www.faa.gov/licenses_certificates/aircraft_certification/aircraft_registry/

¹³ *J.P. Airline Fleet International 2009/2010*, 43rd ed.; Flight, Reed Business Information, UK

4.2.2 Operations in 2014

This section presents the detailed average daily aircraft activity summaries developed for calendar year 2014 as described in the previous section. The FAA forecast of the total numbers of operations at SAT for the entire calendar year is listed below in Table 4.

Table 4 – 2014 Operations Summary

Source: HMMH, FAA TAF

Category	Number of Annual Operations Reported by FAA ¹	Number of Daily Average Operations Modeled
Air Carrier	97,302	266.58
Air Taxi	22,163	60.72
General Aviation	53,938	147.78
Military	5,719	15.67
Total	179,122	490.75

Notes: (1) Totals may not add up due to rounding.

Table 5 shows the number of average annual daily aircraft arrivals and departures, as well as whether they occur during the day or night time period – 7 a.m. to 10 p.m. and 10 p.m. to 7 a.m., respectively. The day/night breakdown is critical to the calculation of DNL because the metric weights night operations by a factor of 10 (mathematically equivalent to adding ten decibels to the noise level produced by aircraft operating at night). The aircraft are designated by the INM type with which they were modeled.

A complete year of radar data for January 2012 through December 2012 (inclusive) was aggregated to form an initial baseline of aircraft operations for this NEM update. Analysis indicated that the data were not fully representative as, during this period, temporary runway closures occurred as part of ongoing runway refurbishing program at SAT. Accordingly, operational data from the first quarter of 2014 was examined to develop flight tracks for modeling that would be reflective of all runways being in operation matching relative ratios of runway use from the 2009 NEM update. The modeled aircraft operations were adjusted to match the 2014 annual operation totals presented in Table 4 and based on the FAA TAF. The modeled operations counts were detailed in a memorandum to SAAS dated August 8, 2014 (Appendix D).

Table 5 – Modeled Average Daily Aircraft Operations for 2014

Source: HMMH, NOMS, SAAS, FAA TAF

Aircraft Category	INM Aircraft Type	Arrivals		Departures		Total
		Day	Night	Day	Night	
Air Carrier	717200	1.77	0.45	1.79	0.42	4.43
	727EM2	0.04	0.02	0.03	0.03	0.13
	737300	12.62	1.36	13.03	0.95	27.96
	7373B2	0.55	0.06	0.57	0.04	1.21
	737400	1.83	0.13	1.14	0.81	3.92
	737500	5.61	0.59	5.79	0.40	12.39
	737700	30.09	5.67	30.97	4.79	71.53
	737800	4.44	1.10	4.16	1.38	11.08
	737N17	<0.01	0.00	<0.01	0.00	0.02
	737N9	<0.01	0.00	<0.01	0.00	<0.01
	747400	<0.01	0.00	<0.01	0.00	0.01
	757300	0.04	0.00	0.03	0.01	0.08
	757PW	5.07	0.80	4.64	1.24	11.75
	757RR	0.57	0.42	0.43	0.56	1.97
	767300	<0.01	0.00	<0.01	0.00	0.01
	767400	<0.01	0.00	<0.01	0.00	<0.01
	777200	<0.01	0.00	<0.01	0.00	<0.01
	A300-622R	0.80	1.92	1.09	1.64	5.45
	A310-304	0.49	0.70	0.05	1.14	2.38
	A319-131	3.07	1.79	4.17	0.69	9.73
	A320-211	0.18	0.08	0.15	0.11	0.53
	A320-232	0.76	0.34	0.80	0.31	2.21
	A321-232	<0.01	0.00	<0.01	0.00	<0.01
	CRJ9-ER	19.20	2.20	17.97	3.43	42.81
	CRJ9-LR	2.76	0.93	2.55	1.15	7.39
	DC1010	0.87	0.19	0.45	0.62	2.13
	DC1030	0.35	0.01	0.30	0.06	0.73
	DHC830	0.49	0.11	0.60	<0.01	1.20
	EMB170	0.69	0.03	0.62	0.10	1.44
	EMB175	2.01	0.02	1.60	0.43	4.06
	EMB190	0.43	0.05	0.47	<0.01	0.96
	MD11GE	0.15	0.36	0.46	0.04	1.01
	MD11PW	0.11	0.22	0.29	0.04	0.66
	MD81	0.03	0.00	0.03	0.00	0.07
	MD82	8.46	1.55	8.65	1.36	20.02
	MD83	6.18	1.13	6.60	0.71	14.62
	MD9025	0.68	0.16	0.69	0.15	1.69
	MD9028	0.39	0.09	0.38	0.10	0.97
Air Carrier Subtotal		110.78	22.51	110.56	22.73	266.58
Air Taxi	1900D	1.65	0.06	0.81	0.91	3.44
	BEC58P	0.85	0.03	0.81	0.07	1.77
	CIT3	0.06	0.01	0.06	0.01	0.15
	CL600	0.68	0.04	0.69	0.03	1.43
	CL601	4.69	0.12	3.72	1.09	9.63
	CNA172	0.10	0.00	0.10	0.00	0.20

Aircraft Category	INM Aircraft Type	Arrivals		Departures		Total
		Day	Night	Day	Night	
	CNA182	0.08	0.00	0.08	0.00	0.16
	CNA206	0.37	<0.01	0.32	0.06	0.75
	CNA208	2.94	0.27	1.82	1.39	6.42
	CNA20T	0.04	0.00	0.04	<0.01	0.09
	CNA441	1.53	0.07	1.24	0.37	3.21
	CNA500	0.59	0.05	0.57	0.08	1.29
	CNA510	0.11	0.04	0.12	0.02	0.29
	CNA525C	0.32	<0.01	0.32	<0.01	0.65
	CNA55B	0.72	0.02	0.68	0.06	1.48
	CNA560E	0.35	0.01	0.33	0.03	0.73
	CNA560U	0.06	<0.01	0.06	0.00	0.12
	CNA560XL	1.57	0.08	1.58	0.07	3.31
	CNA680	0.61	0.02	0.58	0.05	1.26
	CNA750	1.06	0.04	1.01	0.09	2.19
	CVR580	0.00	0.01	0.01	<0.01	0.03
	DHC6	0.14	0.02	0.10	0.06	0.31
	DHC8	<0.01	0.00	<0.01	0.00	<0.01
	DHC830	0.37	0.11	0.48	0.00	0.97
	DO228	0.13	0.00	0.12	0.02	0.27
	ECLIPSE500	0.01	0.00	0.01	0.00	0.02
	EMB120	0.19	<0.01	0.06	0.14	0.39
	EMB145	1.29	0.04	1.31	0.02	2.66
	EMB14L	3.36	0.98	4.23	0.11	8.68
	F10062	<0.01	<0.01	0.01	0.00	0.02
	FAL20	<0.01	0.00	<0.01	0.00	0.01
	GASEPV	0.75	<0.01	0.74	0.02	1.52
	GIIB	0.01	<0.01	0.02	0.00	0.03
	GIV	0.29	0.01	0.31	0.00	0.61
	GV	0.04	0.00	0.04	0.00	0.08
	HS748A	0.02	0.00	0.02	0.00	0.04
	IA1125	0.11	0.03	0.13	<0.01	0.27
	LEAR25	0.18	0.03	0.21	<0.01	0.43
	LEAR35	1.81	0.09	1.78	0.12	3.81
	MU3001	0.41	0.02	0.39	0.04	0.85
	PA28	0.03	0.00	0.03	0.00	0.06
	PA31	0.04	<0.01	0.05	<0.01	0.10
	PA42	0.03	0.00	0.03	0.00	0.06
	SD330	0.46	0.00	0.44	0.02	0.92
Air Taxi Sub-total		28.08	2.28	25.47	4.89	60.72
General Aviation	1900D	0.26	0.00	0.14	0.11	0.51
	A109	<0.01	0.00	0.00	<0.01	<0.01
	B206B3	0.10	0.03	0.08	0.05	0.26
	B206L	0.05	<0.01	0.06	0.00	0.11
	B407	0.06	0.06	0.06	0.06	0.24
	B430	0.01	<0.01	0.00	0.02	0.04
	BEC58P	2.60	0.14	2.64	0.10	5.48
	CIT3	0.76	0.03	0.72	0.06	1.56

Aircraft Category	INM Aircraft Type	Arrivals		Departures		Total
		Day	Night	Day	Night	
	CL600	2.22	0.17	2.06	0.33	4.78
	CL601	3.18	0.15	3.07	0.26	6.66
	CNA172	1.17	0.05	1.13	0.08	2.43
	CNA182	1.45	0.06	1.47	0.05	3.03
	CNA206	2.44	0.17	2.59	0.02	5.21
	CNA208	4.61	0.27	4.40	0.48	9.76
	CNA20T	1.05	0.04	1.00	0.09	2.19
	CNA441	5.80	0.29	5.70	0.40	12.19
	CNA500	0.93	0.06	0.95	0.04	1.98
	CNA510	2.45	1.02	2.23	1.24	6.94
	CNA525C	4.31	0.24	4.38	0.17	9.10
	CNA55B	1.47	0.02	1.41	0.08	2.98
	CNA560E	0.85	0.06	0.87	0.04	1.81
	CNA560U	1.08	0.06	1.06	0.08	2.29
	CNA560XL	3.01	0.14	2.96	0.19	6.29
	CNA680	0.93	0.04	0.91	0.06	1.95
	CNA750	1.77	0.07	1.68	0.15	3.68
	CVR580	<0.01	0.00	<0.01	0.00	0.01
	DC3	0.10	0.00	0.10	0.00	0.19
	DHC6	0.09	0.01	0.10	<0.01	0.20
	DHC7	0.02	0.00	0.02	0.00	0.03
	DHC8	0.01	0.00	0.01	0.00	0.02
	DHC830	0.91	0.09	1.00	0.00	1.99
	DO228	2.25	0.07	2.26	0.06	4.64
	DO328	<0.01	0.01	0.01	<0.01	0.04
	EC130	0.19	0.16	0.20	0.15	0.70
	ECLIPSE500	0.55	0.02	0.55	0.01	1.12
	EMB120	0.12	0.00	0.11	0.02	0.25
	EMB145	1.10	0.07	1.16	0.02	2.34
	EMB14L	0.59	0.00	0.56	0.03	1.18
	F10062	1.58	0.16	1.69	0.05	3.48
	FAL20	0.02	0.00	<0.01	0.01	0.04
	GASEPF	0.83	0.03	0.77	0.09	1.72
	GASEPV	6.22	0.28	6.19	0.30	12.99
	GII	0.16	0.02	0.18	0.00	0.36
	GIIB	0.09	<0.01	0.09	<0.01	0.19
	GIV	1.71	0.11	1.53	0.29	3.65
	GV	0.65	0.02	0.59	0.08	1.35
	H500D	<0.01	0.00	<0.01	0.00	<0.01
	HS748A	0.24	<0.01	0.25	0.00	0.50
	IA1125	0.56	0.01	0.56	0.02	1.14
	LEAR25	0.03	0.00	0.03	0.00	0.06
	LEAR35	6.47	0.32	6.39	0.40	13.58
	MU3001	1.05	0.13	1.11	0.07	2.35
	PA28	0.14	0.02	0.14	0.02	0.32
	PA30	0.03	0.00	0.03	<0.01	0.07
	PA31	0.30	0.00	0.30	0.00	0.61

Aircraft Category	INM Aircraft Type	Arrivals		Departures		Total
		Day	Night	Day	Night	
	PA42	0.14	0.00	0.14	<0.01	0.28
	R22	0.06	<0.01	0.06	0.01	0.14
	R44	0.04	0.00	0.03	0.01	0.08
	S76	0.02	0.00	0.02	0.00	0.04
	SA341G	<0.01	0.00	<0.01	0.00	0.02
	SA355F	0.07	0.06	0.04	0.09	0.27
	SD330	0.14	0.02	0.16	0.00	0.33
	SF340	0.02	0.00	0.02	0.00	0.03
General Aviation Sub-total		69.09	4.80	67.96	5.93	147.78
Military	717200	0.25	0.08	0.24	0.10	0.67
	737300	1.05	0.13	1.15	0.03	2.37
	7373B2	0.03	0.00	0.03	0.00	0.06
	737700	0.83	0.22	1.05	0.00	2.10
	737800	0.13	0.03	0.16	0.00	0.33
	757PW	0.19	0.03	0.22	0.00	0.44
	A319-131	0.04	0.00	0.04	0.00	0.07
	A320-211	0.09	0.00	0.09	0.00	0.18
	CL600	0.09	0.00	0.09	0.00	0.18
	CL601	0.19	0.00	0.19	0.00	0.39
	CNA206	0.32	0.00	0.32	0.00	0.64
	CNA208	0.10	0.00	0.10	0.00	0.20
	CNA441	0.27	0.03	0.30	0.00	0.61
	CNA510	0.12	0.00	0.12	0.00	0.24
	CNA525C	0.08	0.00	0.08	0.00	0.16
	CNA55B	0.06	0.00	0.06	0.00	0.12
	CNA560XL	0.10	0.00	0.10	0.00	0.20
	CNA680	0.04	0.00	0.04	0.00	0.07
	CRJ9-ER	1.14	0.08	1.22	0.00	2.44
	DHC830	0.03	0.00	0.03	0.00	0.06
	EMB145	0.06	0.00	0.06	0.00	0.13
	EMB14L	0.15	0.00	0.15	0.00	0.30
	EMB175	0.16	0.00	0.16	0.00	0.32
	EMB190	0.14	0.00	0.14	0.00	0.28
	GASEPV	0.47	0.03	0.50	0.00	0.99
	LEAR35	0.23	0.00	0.23	0.00	0.46
	MD82	0.39	0.03	0.43	0.00	0.85
	MD83	0.30	0.00	0.30	0.00	0.61
	C130	0.03	0.00	0.03	0.00	0.05
	T-38A	0.01	0.00	0.01	0.00	0.03
	F-18	0.01	0.00	0.01	0.00	0.03
	C17	0.01	0.00	0.01	0.00	0.03
	KC135	0.01	0.00	0.01	0.00	0.03
	S70	<0.01	0.00	<0.01	0.00	<0.01
Military Subtotal		7.17	0.66	7.70	0.13	15.67
Grand Total		215.13	30.25	211.69	33.68	490.75

Note: Totals may not add up due to rounding.

4.2.3 Development of 2019 Operations

A five-year forecast of operations was prepared primarily using the FAA 2013 Terminal Area Forecast. The operations and category groupings were adjusted to reflect anticipated changes to the fleet mix that are expected to occur during the forecast period. The runway use percentages from the 2009 SAT NEM were retained as a baseline with minor modifications occurring as a result of anticipated fleet mix changes. Appendix E presents the forecast document prepared for this NEM update.

Table 6 presents the 2019 operations forecast and the associated daily average modeled operations. The five-year forecast projects 202,402 total operations in 2019 with estimated growth in the Air Carrier, Air Taxi, and General Aviation aircraft operation categories. No change in the level of military flight activity is anticipated. Table 7 beginning on the following page shows the number of average annual daily aircraft arrivals and departures, as well as whether they occur during the day or night time period – 7 a.m. to 10 p.m. and 10 p.m. to 7 a.m., respectively.

Table 6 – 2019 Operations Summary

Source: HMMH, FAA TAF

Category	Number of Forecast Annual Operations	Number of Daily Average Operations Modeled
Air Carrier	117,356	321.52
Air Taxi	23,656	64.81
General Aviation	55,671	152.52
Military	5,719	15.67
Total	202,402	554.53

Notes: (1) Totals may not add up due to rounding; and (2) the previous, 2009 SAT NEM update included 226,511 operations for then-future 2014 conditions.

The detailed forecast for 2019 relies on several general assumptions concerning changes to the 2014 fleet occurring within the SAT NEM Update time frame (five years). Publicly available information from various airlines operating at SAT during calendar year 2013 were examined as part of this effort – the 14 airlines specifically reviewed represent approximately 54 percent of calendar year 2014 operations. The remaining 46 percent of operations will be included in the modeling but with the assumption that noisier aircraft required to be retired by 2015 under current regulations would in fact be replaced. In the absence of specific information from operators, growth in operations was assumed to be primarily from aircraft types that are currently in production. Aircraft types that are not currently in production were generally assumed to stay the same as 2012 or reduce operations/phase-out if such information was available.¹⁴ No new aircraft types were assumed to operate at SAT by 2019. The split between day/night operations was assumed to be the same as the existing operations, unless additional operator information was available.

¹⁴ 14 CFR Part 36 describes noise certification of aircraft. Stage 2 aircraft are louder than Stage 3 aircraft of the same weight. 14 CFR Part 36 also defines Stage 4 (quieter than Stage 3) and may in the future define Stage 5. Under 14 CFR Part 36, Stage 2 aircraft will typically not be allowed to operate in continental United States after December 31, 2015 per the *FAA Modernization and Reform Act* of 2012. Currently, aircraft certified to 14 CFR Part 36 as Stage 2 and weighing more than 75,000 lb have generally been prohibited from operating in the continental United States since 2000. In practice, the 2012 act affects the remaining aircraft weighing less than 75,000 lb. FAA released a final rule, effective September 3, 2013, that adopts into operating rules the prohibitions from the 2012 act. Federal Register, July 2, 2013, pp. 39576 – 39583
<http://www.gpo.gov/fdsys/pkg/FR-2013-07-02/pdf/2013-15843.pdf>
Federal Register, September 20, 2013, pg. 57790
<http://www.gpo.gov/fdsys/pkg/FR-2013-09-20/pdf/2013-22850.pdf>

Table 7 – Modeled Average Daily Aircraft Operations for 2019

Source: HMMH, FAA TAF

Aircraft Category	INM Aircraft Type	Arrivals		Departures		Total
		Day	Night	Day	Night	
Air Carrier	737300	8.19	0.87	8.44	0.62	18.13
	737700	63.14	11.84	65.06	9.92	149.96
	737800	8.28	2.05	7.78	2.56	20.67
	747400	<0.01	0.00	<0.01	0.00	0.02
	757RR	0.59	0.43	0.42	0.61	2.05
	767300	2.56	1.40	2.59	1.38	7.93
	767400	<0.01	0.00	<0.01	0.00	<0.01
	777200	<0.01	0.00	<0.01	0.00	<0.01
	A300-622R	0.82	1.95	1.08	1.69	5.54
	A310-304	0.49	0.69	0.05	1.14	2.37
	A319-131	5.67	3.30	7.68	1.29	17.93
	A320-211	0.19	0.08	0.15	0.11	0.53
	A320-232	0.76	0.34	0.79	0.31	2.20
	A321-232	<0.01	0.00	<0.01	0.00	0.01
	CRJ9-ER	19.16	2.19	18.02	3.34	42.71
	CRJ9-LR	2.76	0.93	2.56	1.13	7.38
	DHC830	0.50	0.11	0.61	<0.01	1.23
	EMB170	0.69	0.03	0.63	0.09	1.44
	EMB175	11.12	0.27	9.09	2.30	22.78
	EMB190	0.43	0.05	0.47	<0.01	0.96
	MD11GE	0.05	0.00	0.04	<0.01	0.09
	MD11PW	0.06	0.02	0.07	<0.01	0.15
	MD81	0.03	0.00	0.03	0.00	0.07
	MD83	6.22	1.13	6.65	0.70	14.70
	MD9025	0.68	0.16	0.68	0.16	1.68
	MD9028	0.39	0.09	0.39	0.10	0.97
Air Carrier Subtotal		132.82	27.95	133.30	27.46	321.52
Air Taxi	1900D	1.72	0.07	0.81	0.99	3.59
	BEC58P	0.85	0.03	0.81	0.07	1.76
	CIT3	0.06	0.01	0.06	0.01	0.14
	CL600	1.31	0.08	1.34	0.05	2.78
	CL601	0.73	0.04	0.55	0.23	1.54
	CNA172	0.19	0.00	0.19	0.00	0.38
	CNA182	0.15	0.00	0.15	0.00	0.31
	CNA206	0.37	<0.01	0.31	0.06	0.75
	CNA208	5.84	0.57	3.48	2.92	12.80
	CNA20T	0.09	0.00	0.07	0.01	0.17
	CNA510	0.11	0.04	0.12	0.02	0.29
	CNA525C	0.61	0.02	0.61	0.01	1.25
	CNA55B	1.36	0.04	1.28	0.12	2.79
	CNA560E	0.69	0.02	0.65	0.06	1.43
	CNA560U	0.06	<0.01	0.06	0.00	0.12
	CNA560XL	3.07	0.16	3.09	0.14	6.46
	CNA680	0.60	0.02	0.57	0.05	1.24
	CNA750	2.06	0.07	1.96	0.17	4.26

Aircraft Category	INM Aircraft Type	Arrivals		Departures		Total
		Day	Night	Day	Night	
	DHC8	<0.01	0.00	<0.01	0.00	<0.01
	DHC830	0.37	0.11	0.48	0.00	0.97
	DO228	0.13	0.00	0.12	0.02	0.26
	ECLIPSE500	0.01	0.00	0.01	0.00	0.02
	EMB120	0.19	<0.01	0.05	0.14	0.40
	EMB145	1.25	0.03	1.26	0.02	2.56
	EMB14L	3.26	0.93	4.09	0.10	8.38
	F10062	0.02	<0.01	0.02	0.00	0.04
	GASEPV	0.74	<0.01	0.73	0.02	1.50
	GIV	0.59	0.04	0.62	0.00	1.25
	GV	0.08	0.00	0.08	0.00	0.16
	HS748A	0.02	0.00	0.02	0.00	0.04
	IA1125	0.10	0.03	0.13	<0.01	0.27
	LEAR35	1.99	0.13	1.99	0.13	4.23
	MU3001	0.40	0.02	0.39	0.03	0.85
	SD330	0.91	0.00	0.87	0.04	1.82
Air Taxi Sub-total		29.92	2.48	27.00	5.41	64.81
General Aviation	1900D	0.26	0.00	0.15	0.12	0.52
	A109	<0.01	0.00	0.00	<0.01	<0.01
	B206B3	0.10	0.03	0.08	0.04	0.25
	B206L	0.05	<0.01	0.05	0.00	0.11
	B407	0.06	0.05	0.06	0.05	0.24
	B430	0.01	<0.01	0.00	0.02	0.04
	BEC58P	2.61	0.14	2.65	0.10	5.51
	CIT3	0.75	0.03	0.72	0.06	1.55
	CL600	2.90	0.22	2.70	0.42	6.24
	CL601	4.13	0.20	3.99	0.34	8.66
	CNA172	1.51	0.06	1.46	0.11	3.14
	CNA182	1.88	0.08	1.90	0.06	3.92
	CNA206	2.47	0.17	2.62	0.02	5.28
	CNA208	5.97	0.34	5.70	0.61	12.62
	CNA20T	1.37	0.05	1.30	0.12	2.84
	CNA510	3.13	1.30	2.83	1.60	8.87
	CNA525C	5.50	0.31	5.60	0.22	11.62
	CNA55B	1.88	0.03	1.82	0.10	3.83
	CNA560E	1.07	0.07	1.10	0.05	2.29
	CNA560U	1.08	0.06	1.06	0.08	2.28
	CNA560XL	3.87	0.18	3.80	0.24	8.09
	CNA680	0.94	0.04	0.92	0.06	1.97
	CNA750	2.30	0.09	2.19	0.19	4.77
	DHC8	0.01	0.00	0.01	0.00	0.02
	DHC830	0.92	0.09	1.01	0.00	2.02
	DO228	2.20	0.07	2.21	0.06	4.55
	DO328	0.01	0.02	0.02	<0.01	0.06
	EC130	0.19	0.16	0.20	0.15	0.69
	ECLIPSE500	0.54	0.01	0.55	0.01	1.12
	EMB120	0.12	0.00	0.11	0.02	0.24

Aircraft Category	INM Aircraft Type	Arrivals		Departures		Total
		Day	Night	Day	Night	
	EMB145	1.10	0.07	1.15	0.02	2.33
	EMB14L	0.58	0.00	0.56	0.02	1.16
	F10062	2.02	0.21	2.17	0.06	4.47
	GASEPF	1.09	0.03	0.98	0.13	2.24
	GASEPV	6.21	0.28	6.19	0.31	12.98
	GIV	2.56	0.18	2.36	0.38	5.48
	GV	0.86	0.03	0.78	0.10	1.76
	H500D	<0.01	0.00	<0.01	0.00	<0.01
	HS748A	0.24	<0.01	0.24	0.00	0.49
	IA1125	0.56	0.01	0.56	0.02	1.14
	LEAR35	6.54	0.32	6.45	0.41	13.72
	MU3001	1.03	0.13	1.10	0.06	2.33
	R22	0.08	<0.01	0.07	0.02	0.18
	R44	0.05	0.00	0.04	0.02	0.11
	S76	0.02	0.00	0.02	0.00	0.04
	SA341G	<0.01	0.00	<0.01	0.00	0.02
	SA355F	0.07	0.06	0.04	0.09	0.26
	SD330	0.18	0.03	0.21	0.00	0.42
	SF340	0.02	0.00	0.02	0.00	0.04
	General Aviation Sub-total	71.07	5.20	69.74	6.52	152.52
Military	717200	0.26	0.08	0.24	0.10	0.69
	737300	1.05	0.13	1.14	0.03	2.35
	7373B2	0.03	0.00	0.03	0.00	0.07
	737700	0.86	0.22	1.08	0.00	2.16
	737800	0.13	0.03	0.16	0.00	0.31
	757PW	0.19	0.03	0.22	0.00	0.44
	A319-131	0.03	0.00	0.03	0.00	0.07
	A320-211	0.09	0.00	0.09	0.00	0.18
	CL600	0.09	0.00	0.09	0.00	0.19
	CL601	0.20	0.00	0.20	0.00	0.40
	CNA206	0.31	0.00	0.31	0.00	0.61
	CNA208	0.10	0.00	0.10	0.00	0.20
	CNA441	0.28	0.03	0.31	0.00	0.63
	CNA510	0.12	0.00	0.12	0.00	0.23
	CNA525C	0.08	0.00	0.08	0.00	0.15
	CNA55B	0.06	0.00	0.06	0.00	0.12
	CNA560XL	0.10	0.00	0.10	0.00	0.19
	CNA680	0.03	0.00	0.03	0.00	0.07
	CRJ9-ER	1.13	0.08	1.21	0.00	2.43
	DHC830	0.03	0.00	0.03	0.00	0.07
	EMB145	0.07	0.00	0.07	0.00	0.13
	EMB14L	0.15	0.00	0.15	0.00	0.30
	EMB175	0.17	0.00	0.17	0.00	0.33
	EMB190	0.14	0.00	0.14	0.00	0.28
	GASEPV	0.46	0.03	0.48	0.00	0.97
	LEAR35	0.24	0.00	0.24	0.00	0.47
	MD82	0.39	0.03	0.42	0.00	0.84

Aircraft Category	INM Aircraft Type	Arrivals		Departures		Total
		Day	Night	Day	Night	
	MD83	0.31	0.00	0.31	0.00	0.62
	C130	0.03	0.00	0.03	0.00	0.05
	T-38A	0.01	0.00	0.01	0.00	0.03
	F-18	0.01	0.00	0.01	0.00	0.03
	C17	0.01	0.00	0.01	0.00	0.03
	KC135	0.01	0.00	0.01	0.00	0.03
	S70	<0.01	0.00	<0.01	0.00	<0.01
Military Subtotal		7.17	0.66	7.70	0.13	15.67
Grand Total		240.98	36.29	237.74	39.52	554.53

Note: Totals may not add up due to rounding.

4.3 Aircraft Noise and Performance Characteristics

Specific noise and performance data must be entered into the INM for each aircraft type operating at the airport. Noise data are included in the form of sound exposure level (SEL – see Appendix A) at a range of distances (from 200 feet to 25,000 feet) from a particular aircraft with engines at a specific thrust level. Performance data include thrust, speed and altitude profiles for takeoff and landing operations. The INM database contains standard noise and performance data for over one hundred different fixed-wing aircraft types, most of which are civilian aircraft. The INM automatically accesses the noise and performance data for takeoff and landing operations by those aircraft.

Within the INM database, aircraft takeoff or departure profiles are usually defined by a range of trip distances identified as “stage lengths.” A longer trip distance or higher stage length is associated with a heavier aircraft due to the increase in fuel requirements for the flight. For this study, city pair distances were determined for each departure flight track and used in most cases to define the specific stage length using the INM standard definitions.

This study included many different aircraft types. While many aircraft could be modeled by direct assignments from the standard INM database, some were not in the INM database. For those aircraft types not in the INM standard database, FAA-approved substitutions were used to model the aircraft with a similar type. If no sufficiently similar aircraft could be found, a user-defined aircraft was created for that specific aircraft type.

User substitutions were submitted to FAA on June 19, 2014 (Appendix F) with FAA approval received on July 22, 2014 (Appendix G).

4.4 Runway Utilization

Weather, in particular wind direction and wind speed, is the primary factor affecting runway use at airports. Additional factors that may affect runway use include the position of a facility relative to the runways and temporary runway closures, generally for airfield maintenance and construction. The flight tracks within the radar data reviewed for the Noise Exposure Map Update include the use of all six directions on the three runways at SAT.

4.4.1 Existing Conditions – 2014 Runway Utilization

The flight track data from NOMS for calendar year 2012 contained the necessary information to determine the actual runway end used for each arrival and departure as well as the time of day. Discussions with the SAAS, FAA Air Traffic Control and the FBOs indicated that all helicopters, both

civilian and military, were assumed to arrive and depart in the vicinity of Taxiway K, which is located near the arrival end of Runway 12R and verified in the NOMS data.

Due to airfield projects occurring during recent years causing temporary runway closures, the summarized runway use percentages projected for calendar year 2014, as presented in Table 8 and as depicted in Figure 4, were based on the runway use percentages presented in the 2009 SAT NEM, which is the most recent analysis of runway use without temporary runway closures in effect during a part of the year, usually the summer months. FAA guidance on 14 CFR Part 150 studies indicates that temporary runway closures should not be considered when modeling operations to prepare noise contours. For reasons similar to those presented in Section 4.2.2. above on why the data was modified to reflect the temporary runway closures occurring as part of the refurbishing program, the 2009 SAT NEM runway use percentages represent the best available data. Table 9 provides additional details, including runway use percentages by time period (daytime and nighttime) and aircraft group. The groupings and time periods in Table 9 correspond to the aircraft operations presented in the operations tables.

Table 8 – Overall Runway Use Percentages for 2014

Source: HMMH, Wyle 2009 NEM

Runway	Arrivals	Departures
04	9.2%	32.8%
12L	2.1%	2.0%
12R	71.7%	45.3%
22	3.0%	6.9%
30L	13.0%	12.1%
30R	1.1%	1.0%
Total	100%	100%

Notes: Totals may not match exactly due to rounding.

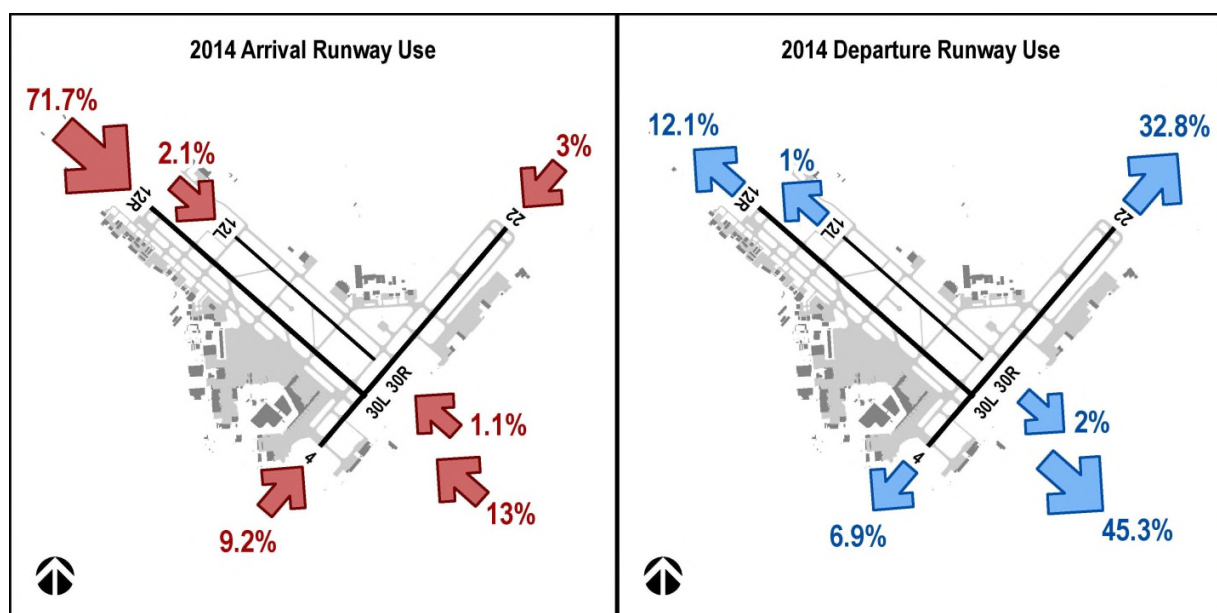


Figure 4 – Overall Runway Use Percentages for 2014

Table 9 – Modeled Average Daily Runway Use for 2014

Source: HMMH, Wyle 2009 NEM

Aircraft Category	Runway	Arrivals		Departures	
		Day	Night	Day	Night
Air Carrier	04	9.4%	7.1%	32.8%	32.7%
	12L	0.4%	0.1%	2.1%	1.5%
	12R	73.3%	78.0%	46.7%	36.2%
	22	3.0%	2.0%	6.2%	11.3%
	30L	13.7%	12.7%	11.3%	17.0%
	30R	0.2%	<0.1%	0.9%	1.3%
	Total	100.0%	100.0%	100.0%	100.0%
Air Taxi	04	11.1%	9.3%	42.2%	40.2%
	12L	6.4%	3.0%	0.7%	0.5%
	12R	66.0%	60.8%	38.8%	31.3%
	22	2.6%	11.2%	5.7%	8.3%
	30L	11.6%	15.3%	11.9%	18.8%
	30R	2.4%	0.5%	0.6%	0.8%
	Total	100.0%	100.0%	100.0%	100.0%
General Aviation	04	9.1%	7.0%	15.2%	23.1%
	12L	3.9%	2.4%	2.6%	3.0%
	12R	69.5%	69.9%	64.8%	56.6%
	22	2.8%	8.0%	3.3%	5.3%
	30L	12.6%	11.7%	13.2%	10.7%
	30R	2.2%	0.9%	0.9%	1.3%
	Total	100.0%	100.0%	100.0%	100.0%
Military	04	7.9%	0.0%	7.9%	0.0%
	12L	0.0%	11.3%	8.2%	0.0%
	12R	73.3%	83.7%	67.1%	100.0%
	22	4.0%	0.0%	5.9%	0.0%
	30L	12.6%	5.0%	10.4%	0.0%
	30R	2.2%	0.0%	0.6%	0.0%
	Total	100.0%	100.0%	100.0%	100.0%
All Fixed Wing	04	9.5%	7.1%	32.8%	32.7%
	12L	2.3%	0.9%	2.1%	1.5%
	12R	71.1%	75.6%	46.7%	36.2%
	22	2.9%	3.6%	6.2%	11.3%
	30L	13.0%	12.6%	11.3%	17.0%
	30R	1.2%	0.2%	0.9%	1.3%
	Total	100.0%	100.0%	100.0%	100.0%

Note: Totals may not match exactly due to rounding.

4.4.2 Forecast Conditions – 2019 Runway Utilization

Runway use for 2019 is consistent with 2014 with only slight differences due to anticipated aircraft fleet mix change expected for 2019.

4.4.2.1 Forecast Runway Utilization Summary

The future runway use data were incorporated into the development of the overall and modeled average day runway use percentages for 2019 as shown in Table 10 and Table 11 and depicted in Figure 5.

Table 10 – Overall Runway Use Percentages for 2019

Source: HMMH, Wyle 2009 NEM

Runway	Arrivals	Departures
04	9.0%	32.4%
12L	2.0%	2.0%
12R	72.0%	45.6%
22	3.0%	7.0%
30L	13.0%	12.1%
30R	1.0%	1.0%
Total	100%	100%

Notes: Totals may not match exactly due to rounding.

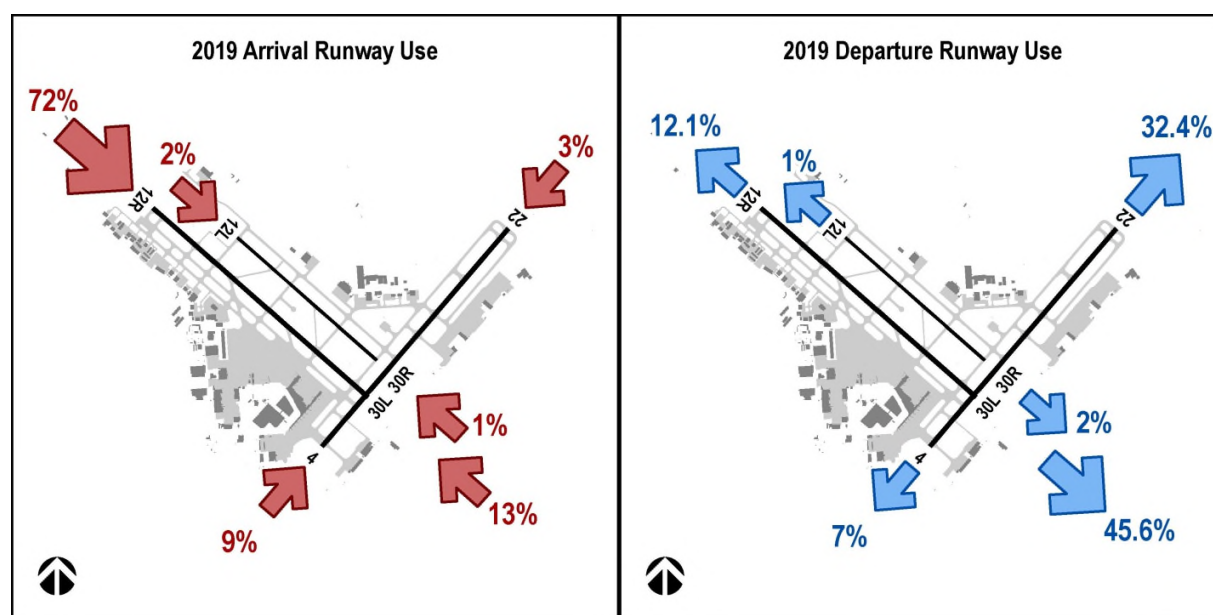


Figure 5 – Overall Runway Use Percentages for 2019

Table 11 – Modeled Average Daily Runway Use for 2019

Source: HMMH

Aircraft Category	Runway	Arrivals		Departures	
		Day	Night	Day	Night
Air Carrier	04	9.2%	7.0%	43.2%	41.4%
	12L	0.3%	<0.1%	0.6%	0.5%
	12R	73.7%	78.1%	38.0%	31.7%
	22	2.9%	1.9%	5.6%	6.3%
	30L	13.7%	12.9%	12.0%	19.3%
	30R	0.1%	<0.1%	0.6%	0.8%
	Total	100.0%	100.0%	100.0%	100.0%
Air Taxi	04	11.8%	7.0%	16.3%	9.2%
	12L	8.6%	4.5%	4.8%	5.7%
	12R	62.3%	59.7%	55.0%	24.1%
	22	2.9%	14.6%	11.6%	47.1%
	30L	11.2%	13.2%	10.7%	9.5%
	30R	3.2%	1.0%	1.5%	4.4%
	Total	100.0%	100.0%	100.0%	100.0%
General Aviation	04	8.6%	7.5%	20.7%	13.2%
	12L	3.4%	2.4%	3.0%	2.3%
	12R	70.6%	69.6%	59.3%	66.9%
	22	2.8%	7.8%	5.3%	4.0%
	30L	12.6%	11.9%	10.4%	12.8%
	30R	2.0%	1.0%	1.4%	0.8%
	Total	100.0%	100.0%	100.0%	100.0%
Military	04	7.9%	0.0%	7.0%	0.0%
	12L	0.0%	10.8%	7.8%	0.0%
	12R	73.6%	83.9%	69.0%	100.0%
	22	3.9%	0.0%	5.8%	0.0%
	30L	12.5%	5.3%	9.8%	0.0%
	30R	2.1%	0.0%	0.6%	0.0%
	Total	100.0%	100.0%	100.0%	100.0%
All Fixed Wing	04	9.3%	6.9%	32.4%	32.4%
	12L	2.2%	0.9%	2.0%	1.5%
	12R	71.4%	75.7%	47.1%	36.4%
	22	2.9%	3.6%	6.2%	11.5%
	30L	13.0%	12.6%	11.3%	16.8%
	30R	1.1%	0.2%	0.9%	1.3%
	Total	100.0%	100.0%	100.0%	100.0%

Note: Totals may not match exactly due to rounding.

4.5 Flight Track Geometry and Utilization

HMMH has developed a pre-processor named “RealContours™” that converts radar flight tracks to INM tracks, thereby modeling each and every radar flight as an INM flight track and producing daily contours, which are then averaged to provide a Yearly DNL. RealContours provides increased precision in modeling INM flight tracks. RealContours uses individual flight tracks taken directly from radar systems rather than relying on consolidated, representative flight track data. This provides the advantage of modeling each aircraft operation on the specific runway it actually used and at the actual time of day of the arrival or departure. RealContours then sets up an INM study for each day using the INM standard data. Each day is then modeled in the INM and the results for each day combined and averaged to get the annual DNL contour. Appendix H provides background for the use of RealContours in previous FAA-funded projects.

A total of 113,212 individual flight tracks were modeled for the 2014 NEM. For the 2019 NEM, 93,893 individual flight tracks were modeled. The reduction in modeled flight tracks from 2014 to 2019 is the result of anticipated removal from service of some aircraft types as described in Appendix E. Figure 6 and Figure 7 present generalized depictions of the flight tracks and operations used to develop the 2014 and 2019 contours for arrivals and departures, respectively. Figure 6 presents a sample of 6,141 arrival model tracks. Figure 7 presents a sample of 5,246 departure model tracks.

No significant changes to the airfield layout are expected within the five-year time frame for this project that would alter the aircraft takeoff or landing locations that could potentially alter the flight track geometries and utilization.

4.5.1 Overall Flight Track Density

In addition to the flight track graphics presented in Figure 6 and Figure 7, flight track density plots are provided to help understand where the majority of aircraft typically fly when arriving and departing SAT. These plots permit presentation of comparative information for longer time frames using thousands of actual aircraft flight tracks. Rather than presenting every individual track, these plots use color gradations to depict the frequency of aircraft operations over extended time periods. These graphics summarize the flight track geometry, dispersion, and the frequency of aircraft operations by using a uniform color gradient scheme based on the relative density of traffic. The “warm” colors (reds) indicate the areas where the most aircraft operations occurred and the “cool” colors (blues) indicate the areas where the fewest aircraft operations occurred given the sets of flight track data described above.

The flight density plots in Figure 8 and Figure 9 represent the density (i.e., frequency) of jet arrivals and jet departure flight tracks, respectively. The flight tracks used to develop these density plots are from January 1, 2012 to December 31, 2012 as augmented with 2014 first quarter radar flight data as previously described in Section 0, above. These figures provide a visual summary of where aircraft predominantly fly throughout the year and represent a sample of the flight tracks that were used to develop the noise contours in this NEM Update. Note that aircraft densities appear to drop suddenly over the airfield due to the flight tracks beginning and ending near the airfield within the data set.

4.6 Meteorological Conditions

The INM has several settings that affect aircraft performance profiles and sound propagation based on meteorological data. Meteorological settings include average annual temperature, barometric pressure, relative humidity at the airport, and average headwind speed. Weather data from the National Climatic Data Center (NCDC)¹⁵ for SAT (WBAN # 12921) were collected and reviewed for calendar years 2004 through 2013. Based on analysis of the NCDC data, the average annual conditions for SAT include a temperature of 70.0° F, sea level pressure of 29.98 in-Hg, and relative humidity of 65.0 percent. For modeling purposes, the average headwind speed was set to 8.0 knots.

4.7 Terrain

Terrain data describe the elevation of the ground surrounding the airport and on airport property. The INM uses terrain data to adjust the ground level under the flight paths. The terrain data do not affect the aircraft's performance or emitted noise levels, but do affect the vertical distance between the aircraft and a "receiver" on the ground. This in turn affects the noise levels received at a particular point on the ground. The terrain data were obtained from the United States Geological Survey (USGS).¹⁶

¹⁵ <http://www.ncdc.noaa.gov>

¹⁶ Data downloaded from <http://viewer.nationalmap.gov/viewer/> on 07/02/2014 in 1/3 Arc-second GridFloat format.

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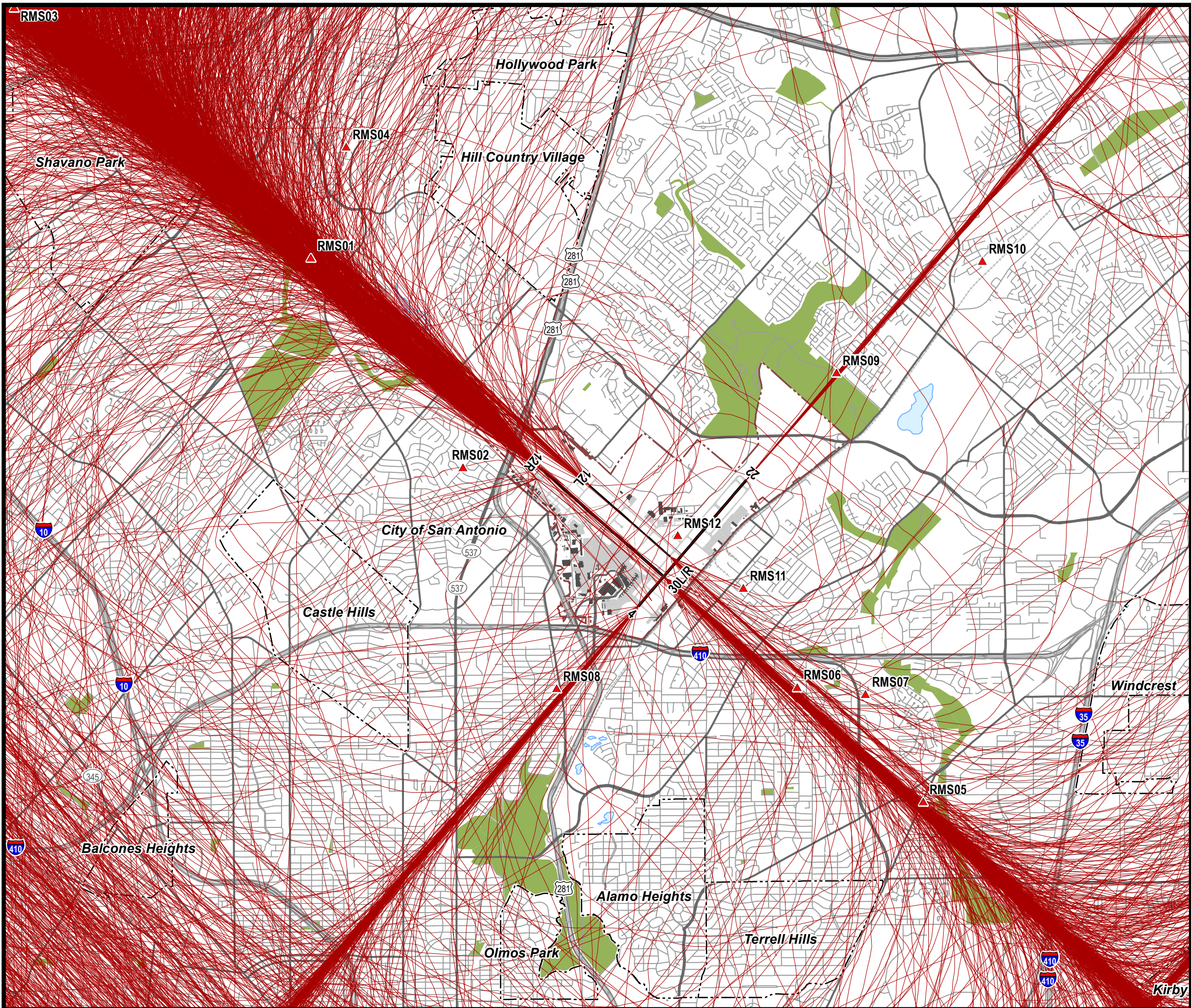
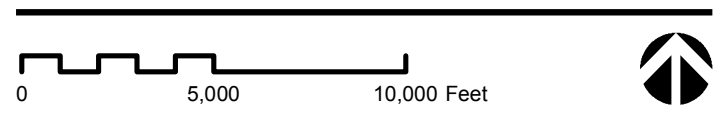



















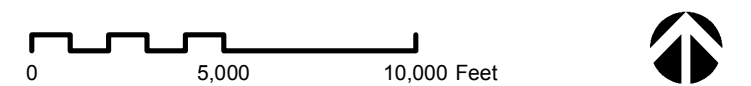
Figure: 6
Representative Sample of Modeled
Arrival Flight Tracks (2014 & 2019)

- Modeled Arrival Flight Tracks
- Noise Monitor Location
- Airport Boundary
- Runway
- Municipal Boundary
- Highways
- Railroad
- Recreational / Open Space
- Water
- School
- Place of Worship
- Library
- Hospital
- Taxiway / Apron
- Airport Buildings
- Major Roads
- Local Roads





	Modeled Departure Flight Tracks				
	Noise Monitor Location				
	Airport Boundary				
	Runway		Taxiway / Apron		Airport Buildings
	Municipal Boundary				
	Highways		Major Roads		Local Roads
	Railroad				
	Recreational / Open Space				
	Water				
	School		Library		
	Place of Worship		Hospital		



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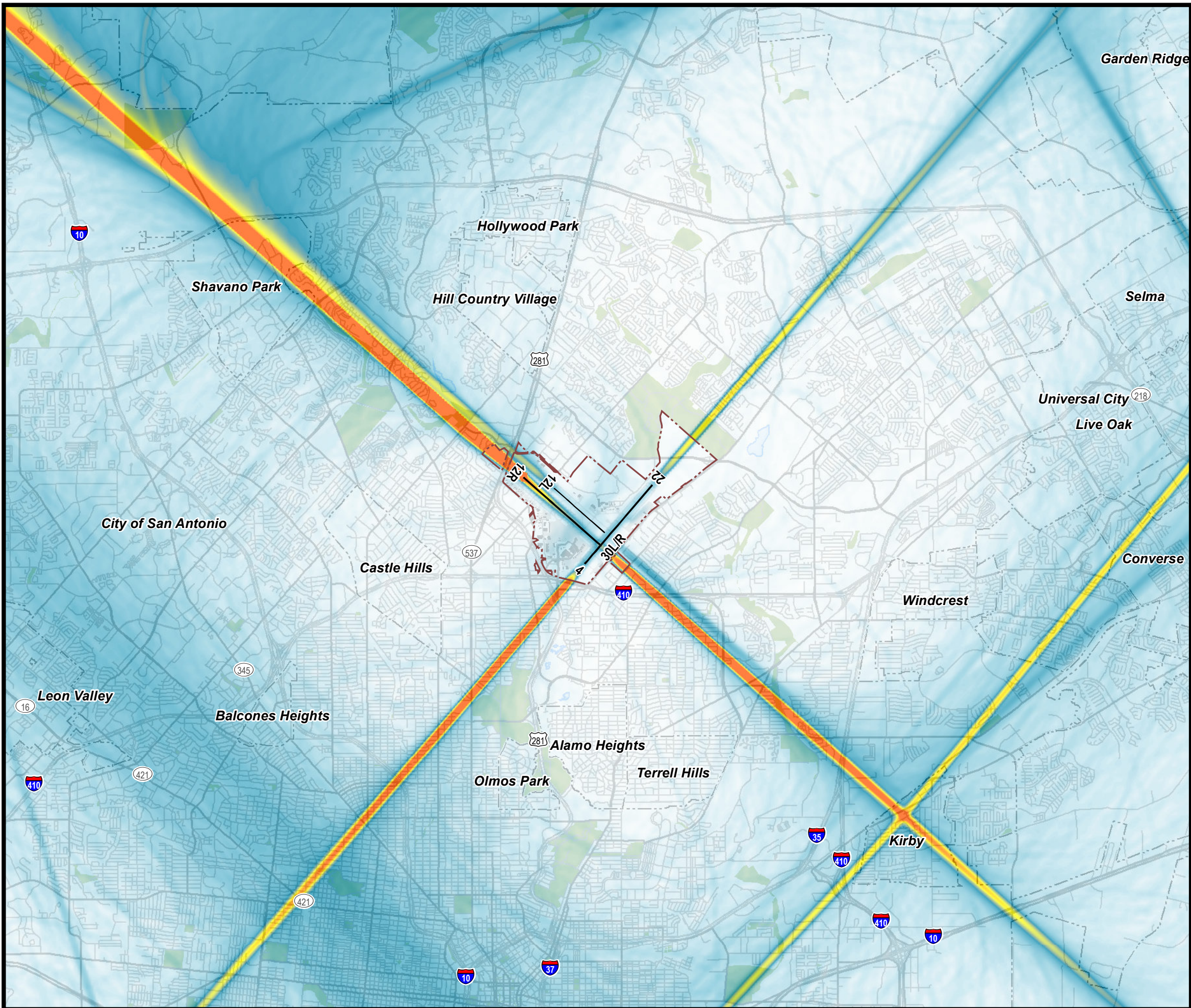
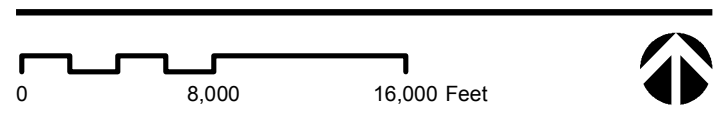
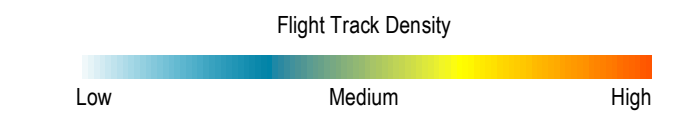


Figure: 8
Flight Track Density plot for San Antonio International Airport Jet Arrivals

- Airport Boundary
- Runway
- Municipal Boundary
- Highways
- Railroad
- Recreational / Open Space
- Water
- Taxiway / Apron
- Airport Buildings
- Major Roads
- Local Roads



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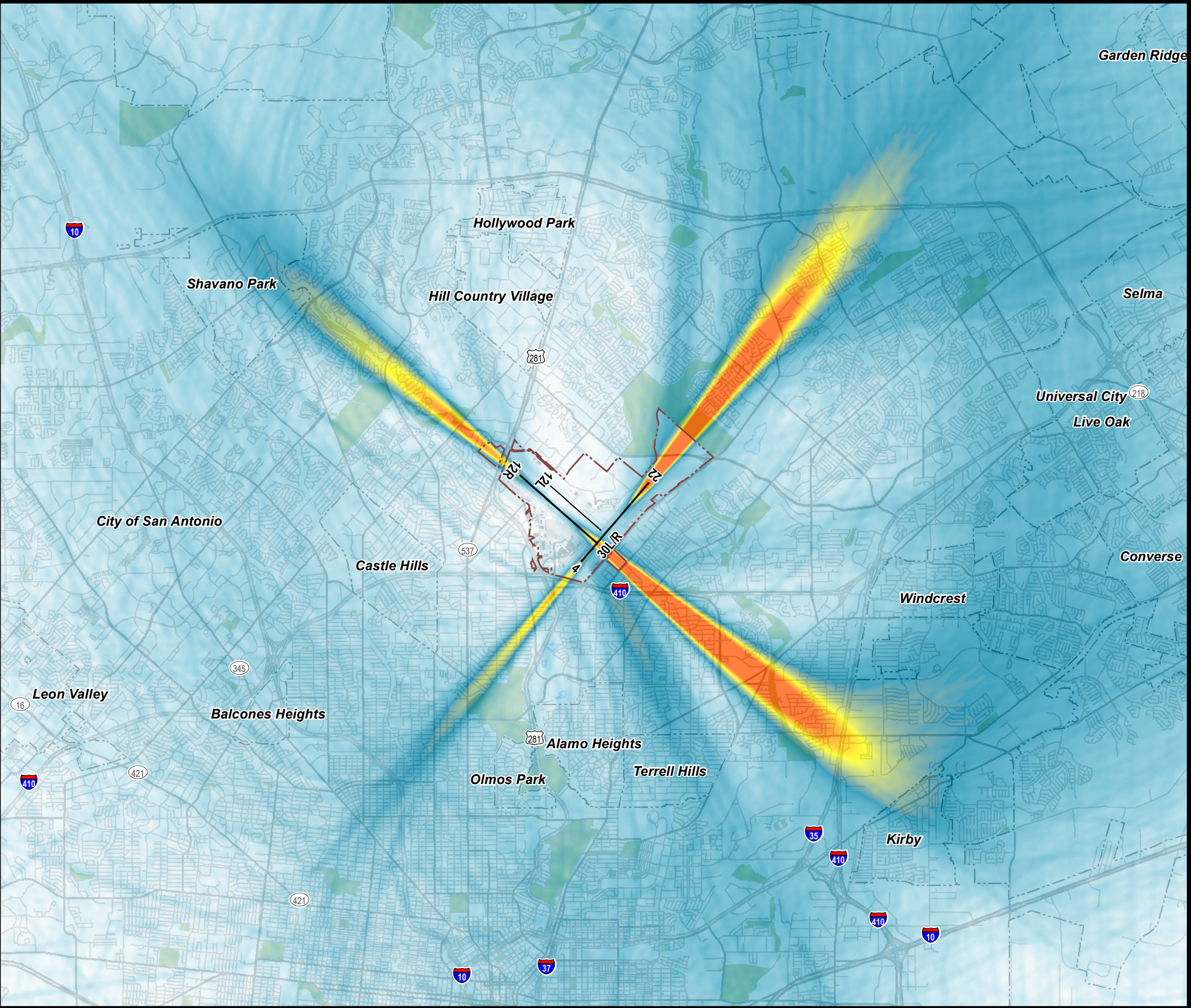
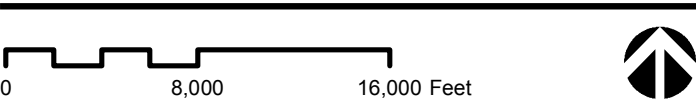
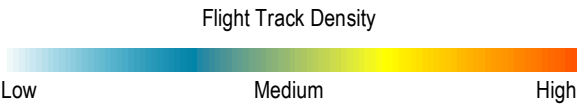


Figure: 9
Flight Track Density plot for San Antonio
International Airport Jet Departures

- Airport Boundary
- Runway
- Municipal Boundary
- Highways
- Railroad
- Recreational / Open Space
- Water
- Taxiway / Apron
- Airport Buildings
- Major Roads
- Local Roads



5 EXISTING AND FORECAST NOISE EXPOSURE MAPS

The development of the NEM Update requires the use of an FAA approved methodology or computer program, which for this project is Version 7.0d of the Integrated Noise Model (INM). The fundamental noise elements of the NEM are DNL contours for existing and five-year forecast conditions: i.e., 2014 and 2019 in this NEM Update. Figure 10 and Figure 11 present the contours for existing conditions and forecast conditions, respectively. Figure 12 depicts the existing and forecast conditions contours together for ease of visual comparison.

5.1 Comparison of 2014 Existing Contours and 2019 Forecast Contours

The modeling assumptions related to airport layout remain unchanged from 2014 to 2019; however, the conditions differ in terms of the level and mix of aircraft activity. The aircraft operations assumptions used in developing these two sets of contours are presented in Section 4.2, the runway use for the existing and forecast conditions is presented in Section 4.4 and the flight track use is described in Section 4.5.

The comparison shows little to no change to the noise exposure to the sideline of the runways, while showing a moderate increase to the northwestern extent of the contours (along the axis of the extended Runway 30L centerline and a slight increase to the northeastern, southeastern, and southwestern extents associated with the extended centerlines of Runways 4, 12R, and 22, respectively. The increases are related to the increase in operations projected over the forecast period. As shown in Table 12 the increase in overall area within the DNL 65 dB contour was approximately 17% from 2014 to 2019.

Table 12 – Comparison of Land Area Enclosed by the 2014 and 2019 DNL dB Contours

Source: HMMH

Noise Level, DNL	Contour Land Area (Square Miles)		
	Existing Contours 2014	Forecast Contours 2019	Percent Change
60-65	4.7	5.4	14.9%
65-70	1.7	2.0	17.6%
70-75	0.7	0.8	14.3%
75+	0.5	0.6	20.0%
Total 65+	2.9	3.4	17.2%
Total 60+	7.6	8.7	14.5%

Notes: Totals and sub-totals may not match exactly due to rounding. Percent change denoted is relative to the existing condition (2014) contours.

5.2 Compatible Land Use Analysis

The objective of airport noise compatibility planning is to promote the compatible growth and development of airports with their surrounding communities. The SAAS uses the FAA's land-use compatibility guidelines, as set forth in 14 CFR Part 150, Appendix A, Table 1, which is reproduced as Table 1, in Section 1.3.5 of this document. As the table indicates, the FAA considers all land uses to be compatible with aircraft-related values below DNL 65 dB. Residential hotels, retirement homes, intermediate care facilities, hospitals, nursing homes, schools, preschools, and libraries are subject to the same criteria.

Based on these compatibility guidelines, a list of noise-sensitive land uses was prepared and the existing land use from the City of San Antonio database was refined to identify the location of all potential existing noise-sensitive land uses. This list of uses includes public and private schools and universities, hospitals, nursing homes, libraries, historic sites, parks, and places of worship. The noise-sensitive land use database was supplemented by information received from public agencies that were requested to provide a description of anticipated land use changes. Historic resources were also identified and added to the inventory of sensitive land uses and facilities. Pursuant to Section 106 of the National Historic Preservation Act, any project involving Federal funding must assess the project's impact on properties that have been accepted or are eligible for National Register designation. Existing noise-sensitive facilities and historic resources located within the study area are depicted on the NEM Figures, Figure 10 through Figure 12.

Figure: 10
Existing Condition (2014) Noise Exposure Map

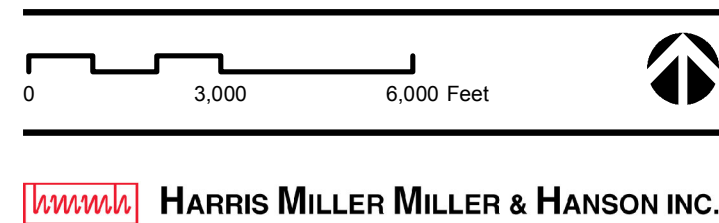
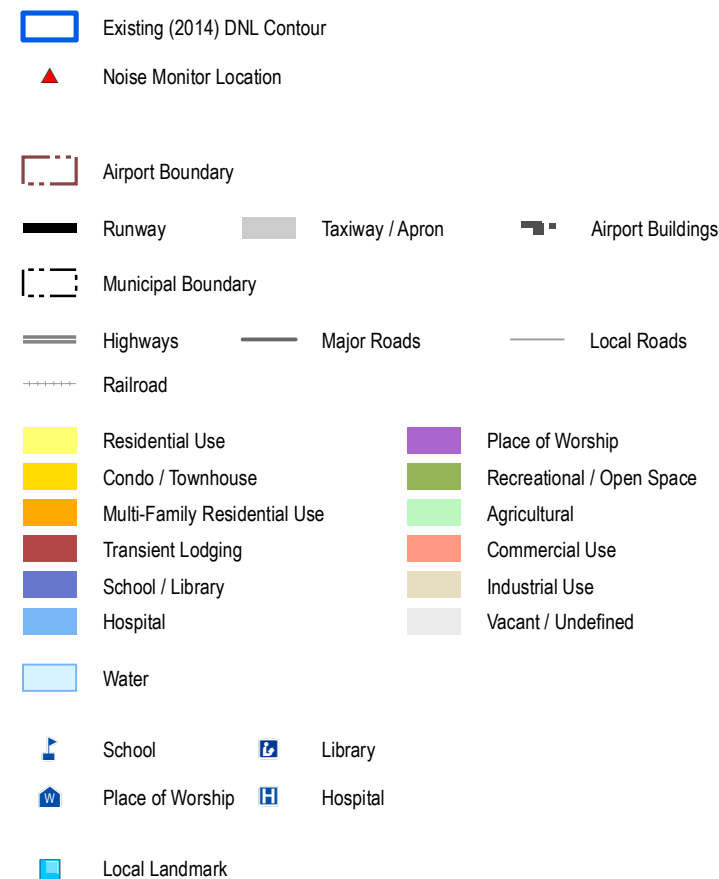
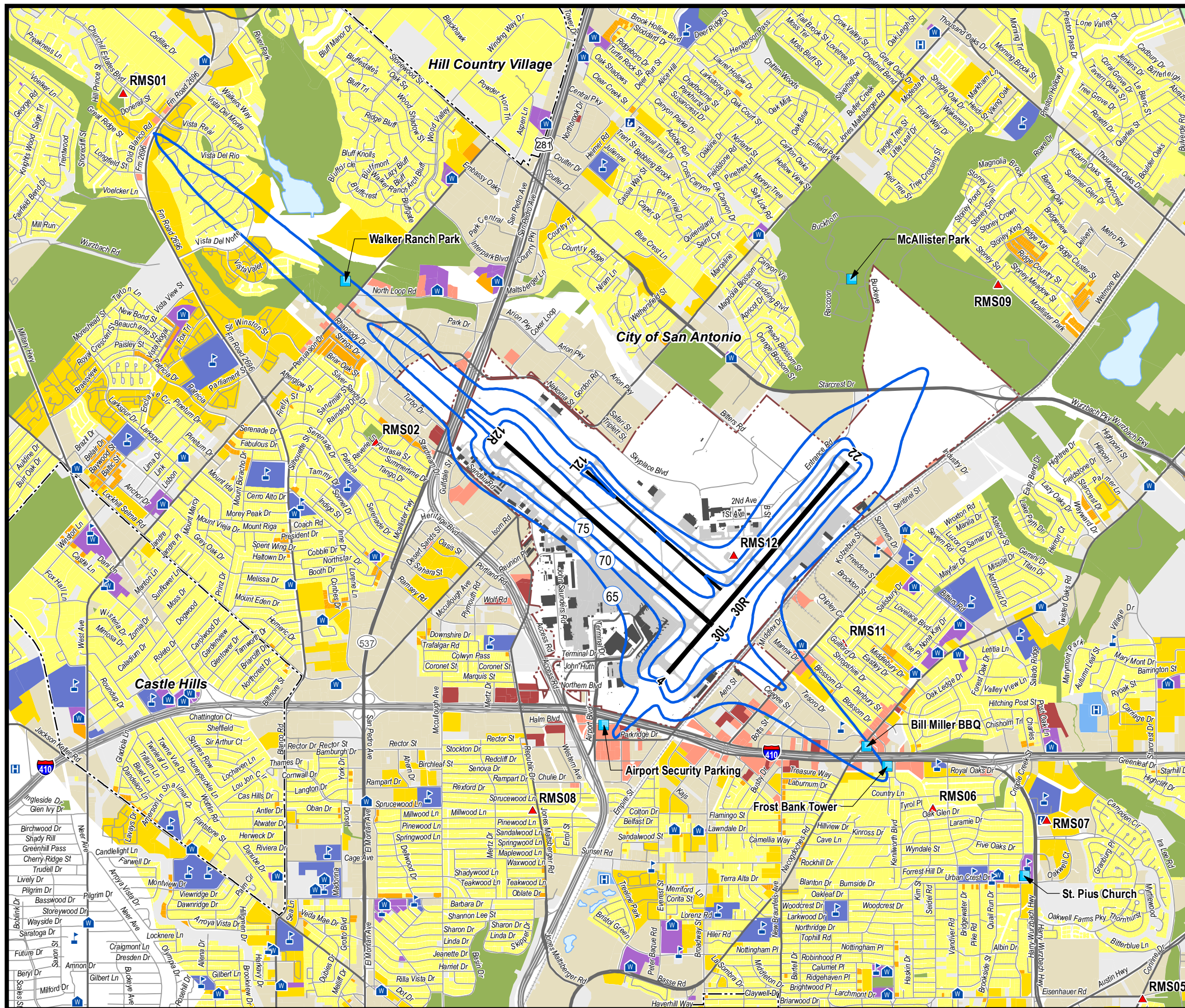
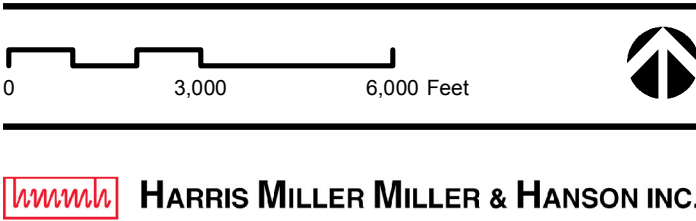
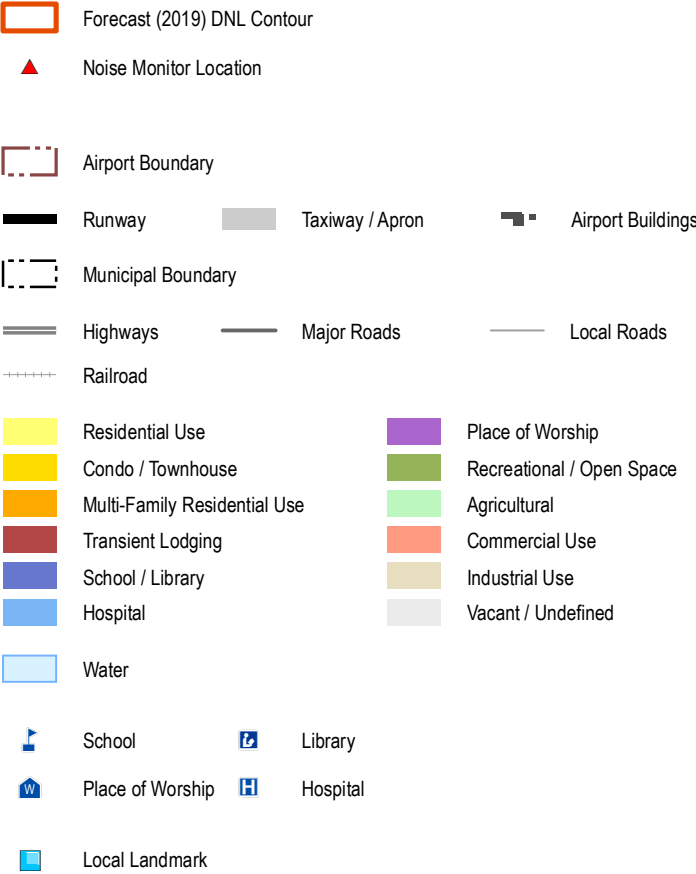
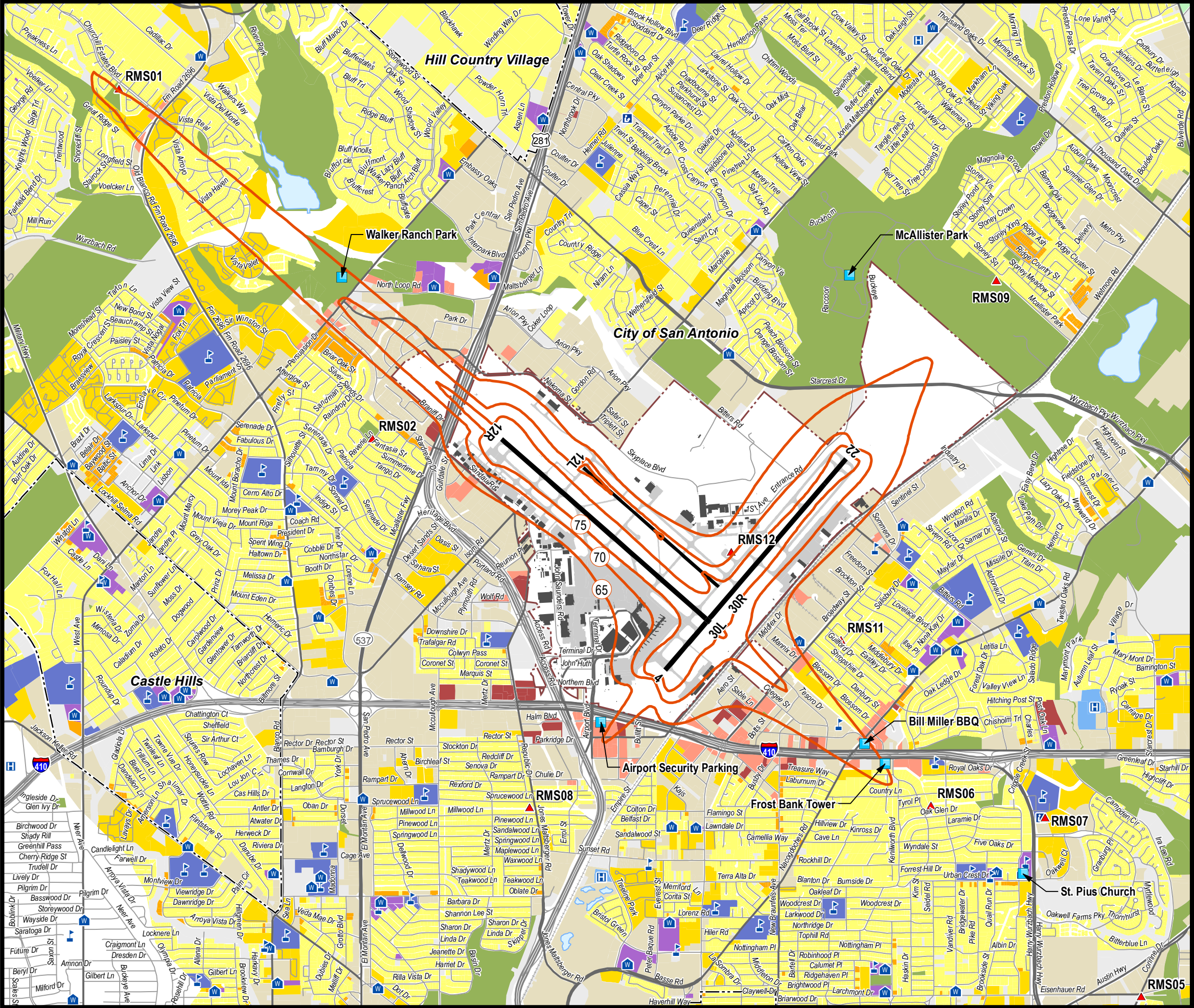


Figure: 11
Forecast Condition (2019) Noise Exposure Map



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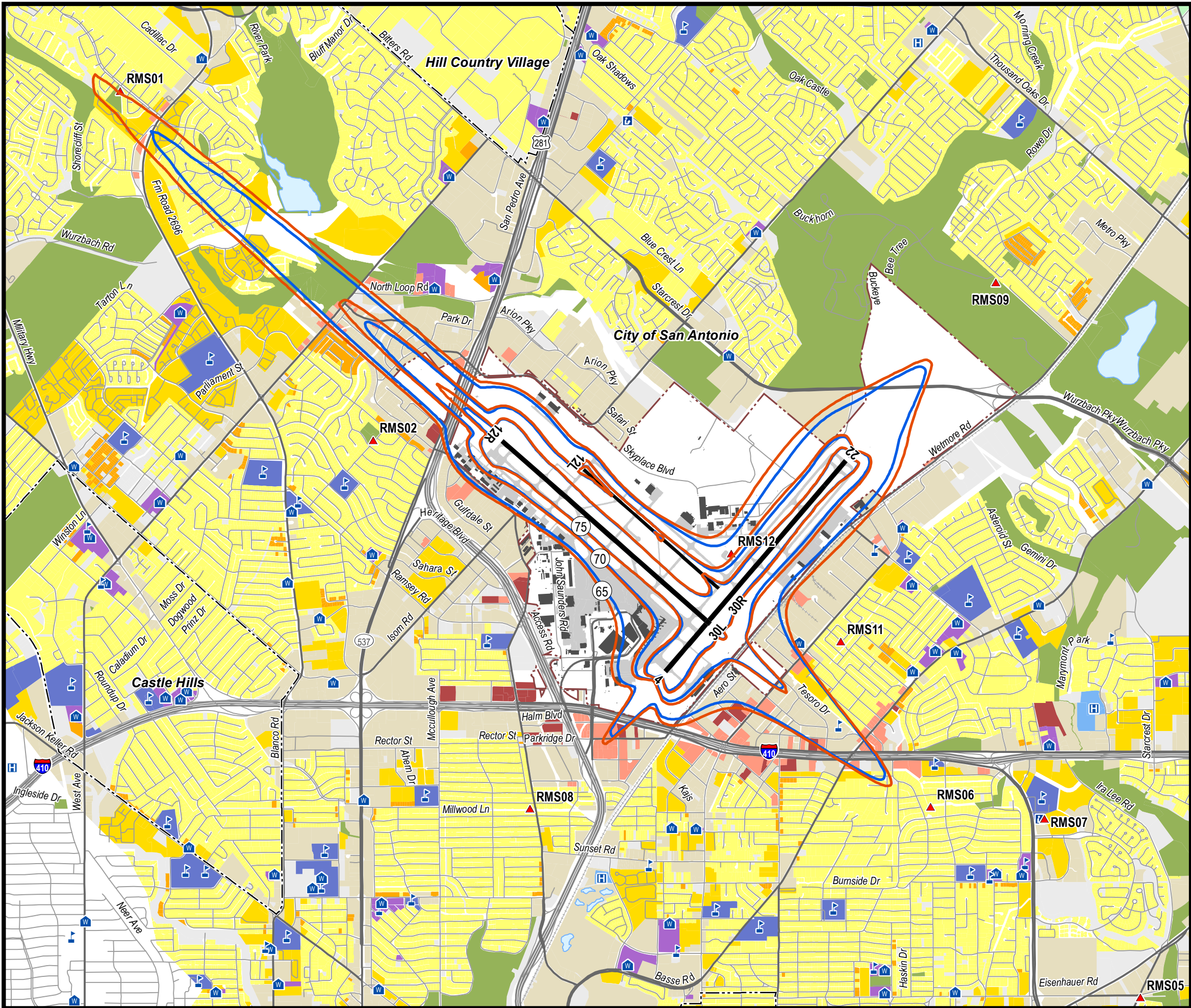
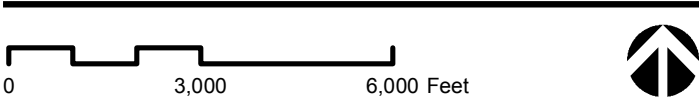


Figure: 12
Comparison of Existing (2014) and
Forecast (2019) Noise Exposure Maps

- Existing (2014) DNL Contour
- Forecast (2019) DNL Contour
- Noise Monitor Location
- Airport Boundary
- Runway
- Taxiway / Apron
- Airport Buildings
- Municipal Boundary
- Highways
- Major Roads
- Local Roads
- Railroad
- Residential Use
- Condo / Townhouse
- Multi-Family Residential Use
- Transient Lodging
- School / Library
- Hospital
- Water
- Place of Worship
- Recreational / Open Space
- Agricultural
- Commercial Use
- Industrial Use
- Vacant / Undefined
- School
- Place of Worship
- Library
- Hospital



5.2.1 Historic Resources and Non-Residential Noise-Sensitive Land Uses within the Noise Contours

The NEM base map depicts existing land uses from City of San Antonio GIS data, which correspond to or are included in the major categories identified in 14 CFR Part 150 guidelines. For example, the residential classification identified in 14 CFR Part 150 would include “Residential”, “Condo/Townhouse”, and “Multi-Family Residential” contained in the City of San Antonio land use classifications. Similarly, 14 CFR Part 150 classification for Public Use is depicted in greater detail with the “School/Library”, “Hospital”, and “Place of Worship” classifications. Also depicted are commercial, industrial, and agricultural. The “industrial” classification includes warehouse, light manufacturing, assembly and heavy commercial uses. Where industrial, office, and other commercial uses are intermixed, the figure indicates the most common use.

As mentioned previously, Figure 10 and Figure 11 present NEMs for 2014 and 2019, respectively. There is one public facility (school) with no historic resources within the noise exposure contour (DNL 65 dB) associated with SAT operations in 2014. The 2019 forecast identifies the same public facility (school) and same lack of historic resources. The school is “Concordia University at San Antonio” and it is located within an office park north of I-410 Northeast Loop off Tesoro Drive.

5.2.2 Residential Land Uses and Population within the Noise Contours

Estimates of existing population and future population trends within the study area are an essential part of the 14 CFR Part 150 process. These estimates provide a basis for examining the effects of existing airport operations, as well as noise abatement alternatives. When quantified, an assessment of the relative impacts of various alternatives on existing and projected population and households provide one means to measure the effectiveness of such alternatives. The analysis of the growth of population and households in the study area, particularly in areas that may be more significantly impacted by aircraft noise, is also important in identifying land use and noise mitigation strategies.

The objective of airport noise compatibility planning is to promote the compatible growth and development of airports with their surrounding communities. The FAA considers all land uses to be compatible with aircraft-related values below DNL 65 dB. Table 13 presents the estimated residential population within these contours.

In order to estimate the number of people residing within the noise contours, existing parcel boundary land use maps were overlaid on 2010 US Census TIGER file maps that depict the smallest Census enumeration unit. “Populated Area” data polygons were then created by combining Census blocks with the residential land use concentrating population and housing unit values into the residential portion of the census block where people actually live. For example, in some areas the population is concentrated along the road rather than over several square miles of open or undeveloped land.

Using Geographic Information Systems (GIS) tools, the noise contours were intersected with these “Residential/Census” data for each DNL noise contour 5-dB interval. The resultant wholly or partially encompassed Residential/Census areas were then identified; the proportion of total area within the contour level was then calculated to determine the estimated residential population and housing unit counts ascribed to that level.

The results were then used to develop the estimated population and housing counts shown in Table 13. Using the City of San Antonio parcel coverage, parcel and unit counts were derived by selecting all single- and multi- family parcels that intersect each contour interval and summarizing the unit values in the respective database.

Table 13 – Estimated Residential Population within 2014 and 2019 DNL Contours

Source: HMMH

Noise Level, DNL	Existing Contours - 2014		Forecast Contours - 2019	
	Estimated Population	Estimated Number of Housing Units	Estimated Population	Estimated Number of Housing Units
65-70 dB	1,538	706	2,600	1,234
70-75 dB	0	0	0	0
75+ dB	0	0	0	0
Total	1,538	706	2,600	1,234

The increase in estimated number of single-family houses within the contours is based on the shifting of the noise contours, particularly the northwestern lobe predominantly associated with arrivals on Runway 12R.

As noted in Chapter 2, the Airport has a RATP, which is expected to have successfully mitigated 1,423 homes and 216 apartment units from the beginning of the program through the current allocation of funds. Figure 13 in section 5.2.3 depicts the locations of single- and multi-family properties that have been mitigated by the RATP as of August 14, 2014. Table 14 and Table 15 present the total number of parcels, parcels mitigated through the RATP, parcels not eligible for mitigation and those parcels remaining as noncompatible in each of the 5-dB DNL intervals for 2014 and 2019, respectively.

**Table 14 – Compatibility Analysis Results by Parcel
Within 2014 (Existing Conditions) Noise Contours**

Source: HMMH

Noise Compatibility by Parcel				
Noise Level, DNL	Total Parcels	Compatible Parcels		Noncompatible Parcels
		Sound Insulated ¹	Ineligible ²	
65-70 dB	322	165	140	17
70-75 dB	0	0	0	0
75+ dB	0	0	0	0

Notes: (1) Sound insulation completion or "In Process" Status is as of August 14, 2014 for the RATP and (2) "Ineligible" refers to Structures constructed after October 1, 1998 per the FAA Airport Improvement Program Handbook, Section 2, paragraph 810d, FAA Order 5100.38c, June 28, 2005.

**Table 15 – Compatibility Analysis Results by Parcel
Within 2019 (Future Conditions) Noise Contours**

Source: HMMH

Noise Compatibility by Parcel				
Noise Level, DNL	Total Parcels	Compatible Parcels		Noncompatible Parcels
		Sound Insulated ¹	Ineligible ²	
65-70 dB	484	231	164	89
70-75 dB	0	0	0	0
75+ dB	0	0	0	0

Notes: (1) Sound insulation completion or "In Process" Status is as of August 14, 2014 for the RATP and (2) "Ineligible" refers to Structures constructed after October 1, 1998 per the FAA Airport Improvement Program Handbook, Section 2, paragraph 810d, FAA Order 5100.38c, June 28, 2005.

5.2.3 Noise Mitigation Boundary

Per FAA guidelines, SAAS is expanding the noise mitigation area beyond the DNL 65 dB contour to include contiguous residential parcels. Part 150 allows the Airport sponsor to choose either the existing (2014) or forecast (2019) noise exposure map to implement the NCP measures. For purposes of continuing the implementation of the RATP at SAT, the City has decided to use the forecast 2019 noise exposure map as the basis for the noise mitigation boundary.

Many members of the communities surrounding the airport indicated a strong preference for the RATP to maintain the character of neighborhoods and follow reasonable street/neighborhood boundaries instead of following along the noise contour exactly. The City concurs and will continue to assign higher priority to those properties within the 2019 DNL 65 dB contour as they experience the higher aircraft noise exposure as indicated by the noise exposure maps.

The noise mitigation boundaries shown in Figure 13 were reviewed by the FAA's Texas Airports Development Office (ADO) and, according to the ADO, follow the guidelines recently updated in the Airport Improvement Program (AIP) Handbook¹⁷:

“In determining the reasonable end point for noise insulation projects, the ADO must ensure that the end point is a logical breakpoint (such as a neighborhood boundary, significant arterial surface street, highway, river, other physical or natural barrier or feature) or whether the end point extends unreasonably beyond a natural break.”

Figure 13 depicts the noise mitigation boundary in relation to the 2019 DNL 65dB contour for the RATP.

At this time, there are currently 483 single family homes and 11 multi-family parcels consisting of 2,154 dwelling units within the noise mitigation boundaries depicted in Figure 13. Of these, 108 single family homes and 10 multi-family parcels (1,938 dwelling units) are eligible under the current guidance for participation in the voluntary RATP. The FAA established a policy as of October 1, 1998 that it would approve federally funded mitigation under Part 150 only for preexisting noncompatible development¹⁸.

The noise mitigation boundary may change in later years as a result of updates to the Noise Exposure Map to provide options for compatible land use and to guide future planning and development of the area. A boundary adjustment based on future updates to the NEMs would include discussions between the local planning organizations, property owners, the FAA, and the Airport.

¹⁷ FAA Order 5100.38D Airport Improvement Program (AIP) Handbook, Appendix R, Section R-9 “Block Rounding”, Table R-2 Block Rounding Requirements row e. September 30, 2014.

¹⁸ As specified in 14 CFR Part 150, Docket No. 28149 “Final Policy on Part 150 Approval of Noise Mitigation Measures: Effect on the Use of Federal Grants for Noise Mitigation Projects”, effective October 1, 1998

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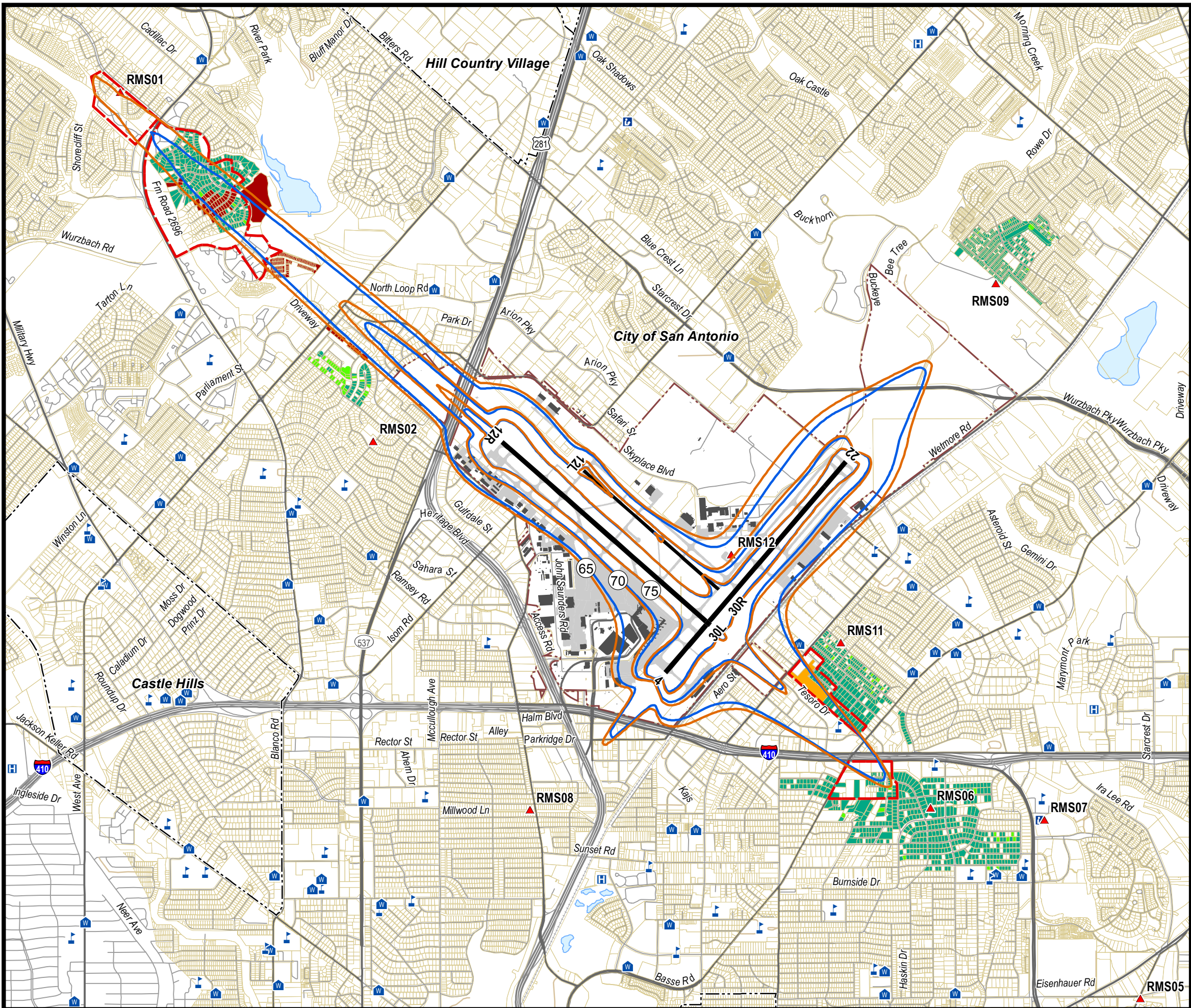
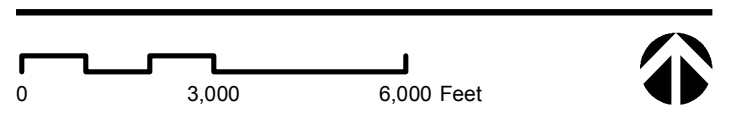


Figure: 13
Noise Mitigation Boundaries

- Existing (2014) DNL Contour
- Forecast (2019) DNL Contour
- Proposed Noise Mitigation Boundary
- Acoustical Treatment In Progress
- Completed Apartments/Multi-Family
- Completed Homes
- Homes Not Eligible (Built After October 1998) or Properties Used for Non-residential Purposes
- Noise Monitor Location
- Airport Boundary
- Runway
- Taxiway / Apron
- Airport Buildings
- Municipal Boundary
- Highways
- Major Roads
- Local Roads
- Railroad
- Water
- School
- Library
- Place of Worship
- Hospital



6 NOISE MEASUREMENT AND NOISE COMPLAINT ANALYSIS

SAAS maintains a noise complaint line 24 hours a day, seven days a week. Concerned citizens may call (210) 207-3471 to file a noise complaint about any specific aircraft operation. In addition, SAAS maintains a noise and operations monitoring system (NOMS) to assist in responding to citizen complaints as well as monitor and record the noise from aircraft operations. As previously described in Chapter 2, one of the noise abatement measures the FAA approved as part of the Noise Compatibility Program for SAT, NA-7, recommended installation of a NOMS and the measure restated below:

NA-7: Install an aircraft noise and operations monitoring system to track the use of departure corridors and departure profiles

This measure recommended the installation of an aircraft noise and operations monitoring system (NOMS) to monitor SAT aircraft operations and noise.

FAA approval status: Approved.

Implementation status: Completed this measure through the installation and subsequent use of the NOMS, which includes a flight track and aircraft identification data acquisition system, 12 noise monitoring terminals dispersed throughout the nearest SAT communities, and an integrated and correlated database. The current system is called “EnvironmentalVue”.

The remainder of this section provides an analysis of the noise measurements and complaints received over the last five years, since the time of the previous NEM update at SAT.

6.1 Noise Measurement Analysis

As described within this NEM update, the noise metric used to report aircraft noise exposure is the Day-Night Average Sound Level or DNL. Appendix A describes DNL in detail. According to 14 CFR Part 150 SAAS installed a NOMS to, among other capabilities and functionality, measure sound levels from aircraft operations using the “A” frequency weighting, filter characteristics, and the “slow response” characteristics as defined in International Electrotechnical Commission (IEC) Publication No. 179, entitled “Precision Sound Level Meters” as incorporated by reference in part 150 under §150.11. SAAS exceeded the requirements of 14 CFR Part 150 by obtaining sound level meters meeting type 1 sound level meters in IEC 179, whereas only type 2 is required. In addition noise measurements are completed by the SAT NOMS in accordance with accepted acoustical measurement methodology, such as those described in American National Standards Institute publication ANSI S1.13, dated 1971 as revised 1979, entitled “ANSI—Methods for the Measurement of Sound Pressure Levels”.

For comparison and analysis of the annual-average DNL as measured at each of the 12 remote monitoring stations (RMS) over the last five years, data was retrieved from the SAT NOMS and is summarized in Table 16 along with the modeling results that produced the aircraft noise exposure contours for 2014 and 2019 and provided in Section 5.

The noise data provided in Table 16 provides a direct comparison from recent annual-average noise exposure measured at each RMS to the modeled values from the INM results for years 2014 and 2019, particularly if you compare the five-year average measured to the 2014 value predicted. The areas where you expect the best agreement are near the extent of each noise exposure contour lobe, which typically follow the runways. Therefore, we compared the five-year annual-average measured level at RMS01, RMS06, RMS08 and RMS09 to the 2014 modeled values of DNL as these sites are the closest to the extent of the contour lobes.

RMS01 modeled value for 2014 is within 1 dB of the measured average, with modeled being slightly higher. RMS06 modeled value for 2014 is also within 1 dB of the measured average, with modeled being slightly lower. The modeled and measured values are quite similar for the SAT parallel runways – Runway 12R/30L and Runway 12L/30R aircraft operations.

RMS08 modeled value for 2014 is approximately 3 dB higher than the measured average and RMS09 is approximately 1 dB higher than the measured average. While not quite as similar in value as the parallel runways, the model produced relatively similar and conservatively higher values for the Runway 04/22 aircraft operations.

Table 16 – Comparison of NOMS Measurements and INM Predicted Noise Exposure in Vicinity of SAT

Monitor	Monitor Location	Measured Average Annual Noise Levels (dB DNL)						Modeled Average Annual Noise Levels (dB DNL)	
		2009	2010	2011	2012	2013	2009-2013 Average	2014	2019
RMS01	Churchill Estates Blvd. (In park 2/10ths of a mile from Blanco Rd)	62.9	63.3	63.2	63.0	62.8	63.0	63.7	64.9
RMS02	Reverie and Nocturne intersection	55.4	57.2	55.6	53.6	54.2	55.4	56.2	57.1
RMS03	NW Military Drive (1/2 mile north of Loop 1604 on left)	54.3	56.8	56.0	55.8	56.0	55.9	55.4	56.6
RMS04	15502 Clover Ridge	45.0	49.6	62.9	48.9	48.6	56.7	48.0	49.1
RMS05	3605 Van Dyke (Corner of Van Dyke and Corinne)	59.5	61.1	61.4	60.8	67.7	62.9	59.2	59.4
RMS06	211 Oak Glen (In Drainage area left of house)	64.2	64.6	64.8	63.5	63.6	64.2	63.5	63.7
RMS07	4134 Harry Wurzbach (Behind the Oakwell Library)	55.8	54.8	53.8	55.1	57.0	55.5	57.3	57.5
RMS08	458 Sprucewood (alley way behind house)	58.7	57.8	55.2	53.4	53.2	56.1	59.7	60.2
RMS09	12199 Wetmore (Private Road on left near white building on left)	63.1	63.2	60.4	58.7	60.1	61.5	62.7	63.0
RMS10	3902 Briar Valley (Right side of house in back)	52.5	54.6	52.2	52.6	58.2	54.8	54.2	55.0
RMS11	134 Eastley	60.6	61.8	62.2	59.4	58.8	60.8	60.4	61.1
RMS12	GRE Airport	62.8	73.8	68.4	63.8	69.4	69.1	67.7	69.3

6.2 Noise Complaint Analysis

SAAS maintains a noise complaint hotline and a web-interface to receive noise complaints from concerned citizens. Complaints are logged, analyzed, and reported on a monthly basis. Complaints are also reviewed and responded to when requested by the citizen filing the complaint. Summarized complaint data are presented in Table 17 below and presented in a graph in Figure 14.

Table 17 – Aircraft Noise Complaints in Vicinity of SAT

SAT Aircraft Noise Complaint Data by Year						1st Quarter Only
	2009	2010	2011	2012	2013	2014
# of Total Complaints	309	456	369	427	371	154
# of Home Owners	132	204	127	97	78	60

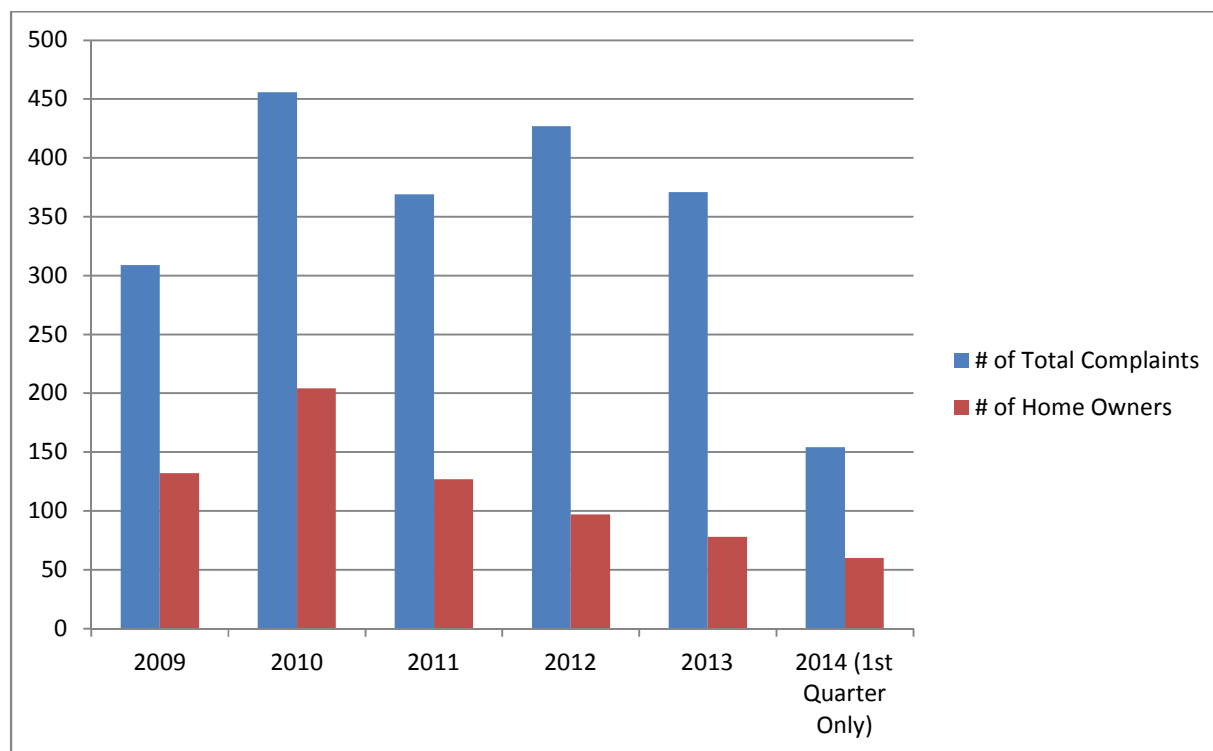


Figure 14 – Aircraft Noise Complaints in Vicinity of SAT by Year

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7 NOISE COMPATIBILITY PROGRAM REVISION

This chapter provides background information on the NCP, per Title 14 of the Code of Federal Regulations Part 150 (14 CFR Part 150)¹⁹, and the proposed revision for two of the SAT NCP measures, as described in Section 2. The proposed revision will accommodate continued implementation by the City without the need to amend the NCP with each subsequent update of the SAT NEM.

From a national historical perspective, the emphasis on aircraft noise compatibility planning began with the passing of the Airport Safety and Noise Abatement (ASNA) Act of 1979. This Act gave authority to the FAA to issue regulations on noise compatibility planning and provide a means for Federal funding for projects dedicated to improving the noise environment around an airport. These regulations became the impetus for publishing 14 CFR Part 150. In 1990 the passage of the Airport Noise and Capacity Act (ANCA) established a national policy on aircraft noise with an emphasis on a phase out of the noisier aircraft types. ANCA also established by regulation 14 CFR Part 161, Notice and Approval of Airport Noise and Access Restrictions, which is a national program for reviewing airport noise and access restrictions on the operation of Stage 2 and Stage 3 aircraft.

As a result, 14 CFR Part 150 sets forth standards for airport operators to use in documenting noise exposure in the airport environs and establishing programs to minimize noise-related land use incompatibilities. While participation in this program by an airport is strictly voluntary, over 250 airports have participated in this program which assists in standardizing noise analysis at a national level. Participation may provide access to Federal funding for implementation of any FAA-approved measure.

7.1 FAA NCP Checklist

The FAA has developed checklists for their internal use in reviewing NCP submissions. The FAA prefers that the Noise Compatibility Program documentation include copies of the checklists. Table 18 presents a completed copy of the NCP checklist for assisting the FAA with their review of the proposed revisions to two of the SAT NCP measures, specifically noise mitigation measures NM-1 and NM-2. All other existing NCP measures remain unchanged.

Table 18 – 14 CFR Part 150 Noise Compatibility Program Checklist
Source: FAA/APP-600, Washington, DC, March 1989; updated 2007 and 2/2008²⁰

FAR PART 150 NOISE COMPATIBILITY PROGRAM CHECKLIST--PART I			
Airport Name: <u>San Antonio International Airport</u>		REVIEWER:	
	Yes/No/ NA	Page/Other Reference	Notes/ Comments
I. Submitting and Identifying The NCP:			
A. Submission is properly identified:			
1. 14 CFR Part 150 NCP?	Yes	Section 1	
2. NEM and NCP together?	Yes	Section 1	
3. Program Revision? (To what extent has it been revised?)	Yes	Section 1.3.2	
B. Airport and Airport sponsor's name are identified?	Yes	Cover, title page, certification page	
C. NCP is transmitted by airport sponsor's cover letter?	Yes	Cover letter	
II. Consultation (including public participation): [150.23]			
A. Documentation includes narrative of public participation and	Yes	Section 8 and	

¹⁹ Title 14 of the Code of Federal Regulations part 150 – Airport Noise Compatibility Planning, Authority: 49 U.S.C. 106(g), 40113, 44715, 47101, 47501-47504, Source: Docket No. 18691, 49 FR 49269, Dec. 18, 1984.

²⁰ http://www.faa.gov/airports/environmental/airport_noise/part_150/checklists/

FAR PART 150 NOISE COMPATIBILITY PROGRAM CHECKLIST--PART I			
Airport Name: <u>San Antonio International Airport</u>		REVIEWER:	
	Yes/No/ NA	Page/Other Reference	Notes/ Comments
consultation process?		Appendix I	
B. Identification of consulted parties:			
1. All parties in 150.23(c) consulted?	Yes	Section 8.1	
2. Public and planning agencies identified?	Yes		
3. Agencies in 2, above, correspond to those affected by the NEM noise contours?	Yes		Maps clearly label jurisdictions.
C. Satisfies 150.23(d) requirements:			
1. Documentation shows active and direct participation of parties in B., above?	Yes	Sec. 8 and Appendix I	
2. Active and direct participation of general public and opportunity to submit their views, data, and comments on the formulation and adequacy of the NCP?	Yes		
3. Participation was prior to and during development of NCP and prior to submittal to FAA?	Yes		
4. Indicates adequate opportunity afforded to submit views, data, etc.?	Yes		
D. Evidence included of notice and opportunity for a public hearing on NCP?	Yes	Section 8.5 and Appendix I	A public meeting and hearing was held for the NEM update and NCP revisions
E. Documentation of comments:			
1. Includes summary of public hearing comments, if hearing was held?	Yes	Appendix I.6 and Volume II	Comments received from the public meeting and hearing are included
2. Includes copy of all written material submitted to operator?	Yes	Appendix I.6 and Volume II	
3. Includes operator's response/disposition of written and verbal comments?	Yes	Appendix I.6	
F. Informal agreement received from FAA on flight procedures?	NA		
III. NOISE EXPOSURE MAPS: [150.23, B150.3; 150.35(f)] (<i>This section of the checklist is not a substitute for the Noise Exposure Map checklist. It deals with maps in the context of the Noise Compatibility Program submission.</i>)			
A. Inclusion of NEMs and supporting documentation:			
1. Map documentation either included or incorporated by reference?	Yes	Section 5.1	
2. Maps previously found in compliance by FAA?	No		
3. FAA's Compliance determination still valid?	No		
4. Does 180-day period have to wait for map compliance finding?	Yes		
B. Revised NEMs submitted with program: (Review using NEM checklist if map revisions included in NCP submittal)	No		Proposed NCP revision does not affect the NEM contours
1. Revised NEMs included with program?	No		Proposed NCP revision does not affect the NEM contours
2. Has airport sponsor requested in writing that FAA make a determination on the NEM(s), showing NCP measures in place, when NCP approval is made??	NA		
C. If program analysis uses noise modeling:			
1. INM, HNM or FAA-approved equivalent?	NA		

FAR PART 150 NOISE COMPATIBILITY PROGRAM CHECKLIST--PART I			
Airport Name: <u>San Antonio International Airport</u>	REVIEWER:		
	Yes/No/ NA	Page/Other Reference	Notes/ Comments
2. Monitoring in accordance with A150.5?			
D. One existing condition and one forecast-year map clearly identified as the official NEMs?	Yes	Figure 10 and Figure 11	
IV. CONSIDERATION of ALTERNATIVES: [B150.7, 150.23(e)(2)]			
A. At a minimum, are the alternatives below considered?			
1. land acquisition and interests therein, including air rights, easements, and development rights?	NA		Not required per discussion with FAA ADO given the recommended changes for the NCP revision.
2. barriers, acoustical shielding, public building soundproofing			
3. preferential runway system			
4. flight procedures			
5. restrictions on type/class of aircraft (at least one restriction below must be checked): a. deny use based on Federal standards b. capacity limits based on noisiness c. noise abatement takeoff/approach procedures d. landing fees based on noise or time of day e. nighttime restrictions			
6. Other actions with beneficial impact not listed in the regulation			
7. Other FAA recommendations			
B. Responsible implementing authority identified for each considered alternative?	Yes	Sections 7.3	Revised measures only
C. Analysis of alternative measures:			
1. measures clearly described?	Yes	Sections 2 and 7	Revised measures only
2. measures adequately analyzed?	Yes		
3. adequate reasoning for rejecting alternatives?	NA		
D. Other actions recommended by the FAA?	NA		
V. ALTERNATIVES RECOMMENDED for IMPLEMENTATION: [150.23(e), B150.7(c); 150.35(b), B150.5]			
A. Document clearly indicates:			
1. alternatives recommended for implementation?	Yes	Section 7	Revised measures only
2. final recommendations are airport operator's, not those of consultant or third party?	Yes	Section 7	Revised measures only
B. Do all program recommendations:			
1. relate directly or indirectly to reduction of noise and noncompatible land uses?	Yes	Section 7	Revised measures only
2. contain description of contribution to overall effectiveness of program?	Yes		
3. noise/land use benefits quantified to extent possible?	Yes		
4. include actual/anticipated effect on reducing noise exposure within noncompatible areas shown on NEM?	NA		
5. effects based on relevant and reasonable expressed assumptions?	Yes		
6. have adequate supporting data to support its contribution to the noise/land use compatibility?	Yes		
C. Analysis appears to support program standards set forth in 150.35(b) and B150.5?	Yes	Section 7	Revised measures only
D. When use restrictions are recommended:			
1. Are alternatives with potentially significant	NA		

FAR PART 150 NOISE COMPATIBILITY PROGRAM CHECKLIST--PART I			
Airport Name: <u>San Antonio International Airport</u>		REVIEWER:	
	Yes/No/ NA	Page/Other Reference	Notes/ Comments
noise/compatible land use benefits thoroughly analyzed so that appropriate comparisons and conclusions can be made?			
2. use restrictions coordinated with APP-600 prior to making determination on start of 180-days?	NA		
E. Do the following also meet Part 150 analytical standards?:			
1. formal recommendations which continue existing practices?	Yes	Section 7.3	
2. new recommendations or changes proposed at end of Part 150 process?	Yes		
F. Documentation indicates how recommendations may change previously adopted plans?	Yes	Section 7.3	
G. Documentation also:			
1. identifies agencies which are responsible for implementing each recommendation?	Yes	Section 7.3	Revised measures only
2. indicates whether those agencies have agreed to implement?	Yes		
3. indicates essential government actions necessary to implement recommendations?	Yes		
H. Time frame:			
1. includes agreed-upon schedule to implement alternatives?	Yes	Section 7.3	Revised measures only
2. indicates period covered by the program?	Yes		
I. Funding/Costs:			
1. includes costs to implement alternatives?	Yes	Section 7.3	Revised measures only
2. includes anticipated funding sources?	Yes		
VI. PROGRAM REVISION: [150.23(e)(9)] Supporting documentation includes provision for revision?	NA		City proposing to revise only two existing NCP measures rather than entire NCP at this time

7.2 Existing NCP Elements for which Revision is Proposed

The existing NCP elements, consisting of 11 Noise Abatement measures and four Noise Mitigation measures, were presented in Section 2. Of these, two measures were tied to the 2014 NEM presented in the 2009 SAT NEM update. These are re-stated below:

NM-1: Continue the Residential Acoustical Treatment Program within the Noise Mitigation Boundary shown in the San Antonio International Airport 2014 Noise Exposure Map (NEM)

This measure provides the continuation of the successful Residential Acoustic Treatment Program (RATP) that improves the noise compatibility at SAT by mitigating aircraft noise to residents exposed to DNL 65 dB and greater.

FAA approval status: Approved as part of the 2009 acceptance letter for the Noise Exposure Map update.

Implementation status: Ongoing with the City expecting to have treated 1,423 homes and 216 apartment units since the beginning of the program through the current allocation of funds.

NM-2: Continue to provide acoustical treatment for schools and religious facilities that have not yet received such treatment and are within the Noise Mitigation Boundary shown in the San Antonio International Airport 2014 Noise Exposure Map (NEM)

This remedial mitigation measure was a continuation of previous NCP programs that provided acoustical treatment to noise-sensitive facilities around SAT. Two schools, one religious facility and one group care home remain available for potential treatment, per the FAA-approved 2014 NEM.

FAA approval status: Approved as part of the 2009 acceptance letter for the Noise Exposure Map update.

Implementation status: Ongoing as funding is available and the property owners are interested. To date the City has provided acoustical treatment to 10 schools, 19 religious facilities, 1 library, and 2 nursing homes.

7.3 Proposed Revision to the Existing Noise Compatibility Program at San Antonio International Airport

The existing NCP measures are listed and described in Section 2 along with the implementation status of each. With this NCP revision the City is recommending the modification of two existing NCP measures with all other measures remaining unchanged.

To avoid the need to revise the SAT NCP each time the NEM is updated, the City recommends the existing NCP be slightly revised by replacing existing noise mitigation measures 1 and 2 with the following:

NM-1: Continue the Residential Acoustical Treatment Program for structures exposed to aircraft noise of DNL 65 dB and higher.

The City of San Antonio intends to continue to provide acoustical treatment for those residential structures exposed to aircraft noise of DNL 65 dB and higher, based on the FAA-accepted and current noise exposure map on file with the FAA. Priority would be given to those areas that are most highly affected by aircraft noise as described in the policies and procedures of the on-going RATP. In addition the FAA has adopted the interior noise standard of DNL 45 dB and requires residential structures be experiencing interior noise levels of 45 dB or greater with windows closed to be considered eligible for acoustical treatment. In approved noise mitigation areas homes are eligible if they are shown to have existing noise levels of 45 dB or greater. For homes within the noise mitigation area that are not determined to have existing interior noise levels of 45 dB or greater, they may be eligible to receive a “separate package” as defined in Table R-3 of the AIP Handbook, Appendix R²¹.

Purpose: To eliminate the remaining noncompatible residential land uses within the FAA-accepted and current noise exposure map on file.

Implementing responsibility: The City of San Antonio, as the owner and operator of SAT, is responsible for the continued implementation of the RATP.

²¹ FAA Order 5100.38D Airport Improvement Program (AIP) Handbook, Appendix R, September 30, 2014.

Funding sources: As described in the Airport Improvement Program (AIP) Handbook, residential properties within the FAA-accepted noise mitigation boundary are potentially eligible for federal funds to implement such programs. The City expects to apply for and continue receiving federal funds to implement the RATP until the program has successfully resulted in all residential parcels being compatible with SAT aircraft operations. The City will match the FAA funds at an expected 20% of the total cost to implement.

Estimated cost to complete: The City has estimated the total cost to complete the RATP for 89 parcels as shown in Table 15 based on only those parcels that are contained within the DNL 65 dB contour of the 2019 NEM, Figure 11, to be \$26 million. This estimate is based on 81 single family parcels and 8 multi-family parcels (1,546 units), times the average cost per parcel (\$47,605) or unit (\$14,154) from the most recent phases. Extending to the Noise Mitigation Boundaries (known in the community as the “neighborhood equity area”) provided in Section 5.2.3 and Figure 13 the estimated cost to complete the RATP increases to \$33 million.

Estimated time to complete (depending on availability of federal and City funds): The City has been completing 100 or more residential properties per phase in the most recent implementation of the RATP. Assuming continued phasing, we expect 2 more phases to complete the program, which could be completed within 4 years.

NM-2: *Continue to provide acoustical treatment to noise-sensitive facilities exposed to aircraft noise of DNL 65 dB and higher.*

The City of San Antonio intends to provide acoustical treatment for additional noise-sensitive facilities, e.g., schools and places of worship, that are located in areas exposed to aircraft noise of DNL 65 dB and higher based on the FAA-accepted and current noise exposure map on file with the FAA.

Purpose: To eliminate the remaining noncompatible non-residential noise-sensitive land uses within the FAA-accepted and current noise exposure map on file.

Implementing responsibility: The City of San Antonio, as the owner and operator of SAT, is responsible for the continued implementation of the RATP.

Funding sources: As described in the Airport Improvement Program (AIP) Handbook, residential properties within the FAA-accepted noise mitigation boundary are potentially eligible for federal funds to implement such programs. The City expects to apply for and continue receiving federal funds to implement the RATP until the program has successfully resulted in all residential parcels being compatible with SAT aircraft operations. The City will match the FAA funds at an expected 20% of the total cost to implement.

Estimated cost to complete: The City has estimated the total cost to complete the RATP based on the 2019 NEM, Figure 11, to be \$0, as the 2019 NEM shows no non-residential noise-sensitive noncompatible parcels.

Estimated time to complete (depending on availability of federal and City funds): According to the 2019 NEM, Figure 11, the City has completed this measure. The City recommends continuing this measure to provide mitigation to such parcels in the event that future NEM updates identify eligible parcels.

8 PUBLIC PARTICIPATION

SAAS considers it essential to involve the interested stakeholders throughout the NEM Update. The public participation program for this NEM included two informal public meetings open to the general public along with other public participation activities as summarized below.

8.1 Project Specific Mailing List

The SAAS staff developed an initial list of interested stakeholders including:

- Organizations and members of the public within any portion of the DNL 65 dB contour
- Aeronautical users of the airport
- FAA officials including Environmental Protection Specialist at the Texas Airports Development Office and Support Manager at the SAT Air Traffic Control Tower

This list was maintained during the development of the 2014 NEM update by the consultant team with additions made as necessary. Notifications of availability for the NEM and associated documentation, as well as notices of the public meetings were sent to stakeholders identified in Table 19 and Table 20.

Table 19 – List of Organizations Contacted for 2014 SAT NEM Update
Source: Ximenes & Associates, Inc.

List of Organizations Contacted within the Vicinity of San Antonio International Airport	
Greater San Antonio Chamber of Commerce	Knollcreek HOA
North San Antonio Chamber of Commerce	Longs Creek HOA
San Antonio Board of Realtors	Macarthur Park HOA
Alamo Heights Neighborhood Association	Monticello Park HOA
Cadillac Drive HOA	Morning Creek HOA
Castle Hills Forrest	North Central Thousand Oaks Neighborhood Association
Chateau Dijon Townhome Owners Association	Northern Hills HOA
Churchill Estates HOA	Oak Grove
Churchill Forrest HOA	Oaks of Vista Del Norte
D9 Neighborhood Alliance	Oak Ridge Village
Dominion	Redland Ranch HOA
Eden HOA	Redland Springs HOA
Eden ROC HOA	Rogers Ranch HOA
Emerald Forrest HOA	Royal George Neighbors
Enchanted Village Townhouse and Condominium Association	Shavano Park
Green Spring Valley HOA	Shearer Hills/Ridgeview HOA
Hidden Oaks HOA	Steubing Ranch
Hunters Hill HOA	Summerfield HOA
Hunters Hill HOA	Terrell Heights Neighborhood Assn
Inwood	Vineyard
Inwood Village	Vista Del Norte
Jefferson NA	Walker Ranch HOA

Table 20 – List of Aeronautical Users of the Airport for 2014 SAT NEM Update

Source: Ximenes & Associates, Inc.

Aeronautical User List	
Aero Sky	North American Aircraft Services
Aeronev LLC	NuStar Logistics
Ahr Aviation/Lewis Energy	Running M Hanger Services, LLC
Allied Aviation/Nayak Aviation L.P.	Security AirPark
Atherton Properties Inc. dba H.H. Aviation	Sierra Victor d.b.a. Silver Ventures
Aviation Airstar	Signature Flight Support Svcs
Cessna Aircraft Company	Skyplace Center
Cutter Aviation	Smart Traveling, Inc
DHL	ST Aerospace San Antonio, L.P.
Federal Express	Stargazer Aviation, a d/b/a of W.W. Tichenor Co., Inc.
Flight Safety	Tesoro Companies, Inc.
H.H. Aviation	U.S. Post Office
Hallmark Aero-Tech/Millionair	United Parcel Service
HEB Grocery Company	USAA Flight Operations
Jet Center/Air Medical	Valero Energy Corporation
Landmark Aviation	Vision Technologies
Lynxs Group LLC	Zachry Industrial
M7 Aerospace	

8.2 Stakeholder Letter

All parties on the mailing list received a letter from the SAAS stating the initiation and purpose of the NEM process. It included a brief description of 14 CFR Part 150 including the NEM part of the regulation, provided information about the opportunities for them to participate in the process, and gave contact information if they had any questions or needed additional information. The stakeholder letter template is provided in Appendix I.

8.3 Media List and Other Outreach Mechanisms

An up-to-date media list was developed that included both English and Spanish media outlets. These outlets were sent notices of the availability of the draft NEM document for review as well as the time, date and location of the public meetings. Media outlets receiving periodic updates and notice materials are listed in Table 21. Additionally, the notices of availability were posted on the City of San Antonio Department of Aviation website²² in English and Spanish.

²² <http://www.sanantonio.gov/Aviation/EnvironmentalStewardship/Noise/NoiseExposureMaps.aspx>

Table 21 – Media Outlets Receiving NEM Update Project Updates
Source: Ximenes & Associates, Inc.

Type	Name
Broadcast Television	
	KENS
	KCWX
	WOAI
	KSAT
	KLRN
	KVDA – Spanish
	KWEX – Spanish
	KMYS
	KABB
	KPXL
	KNIC
	KHCE
	KVDF
	ECO – Galavision (PBS Spanish Affiliate).
Newspapers & Online News Publications	
	San AntonioExpress-News, www.mySA.com
	La Prensa (semiweekly Spanish / English), www.laprensa.com
	Conexión, a weekly bilingual publication from the Express-News
	Prime Time Newspapers –North San Antonio Times, Fort Sam Houston News Leader, and North Central News
	San Antonio Business Journal, www.bizjournals.com/sanantonio/
	San Antonio Current, www.sacurrent.com
	San Antonio Register, www.saregister.com
	African-American Reflections
	Rivard Report, www.therivardreport.com
	San Antonio Informer, contactus@sainformer.net , www.sainformer.net
	Local Community News (monthly) www.salocalowdown.com
FM Stations	
	KAHL adult standards (103.7), www.call1310.com
	KAJA, country (97.3), www.kj97.com
	KBBT, hip-hop (98.5), www.thebeatsa.com
	KLEY, regional Mexican, country (95.7)
	KCY, country (100.3), www.y100fm.com
	KTKX, world class rock (106.7), www.x1067fm.com
	KISS, rock (99.5), www.kissrocks.com
	KNBT, New Braunfels Americana/country (92.1), www.knbtfm.com
	KONO, greatest hits (101.1), kono1011.com
	KPAC, Texas Public Radio, classical (88.3), www.tpr.org
	KQXT, soft rock, adult contemporary (101.9), www.q1019.com
	KTFM, top 40 (94.1), www.ktfm.com
	KROM, Spanish adult contemporary music (92.9), http://estereolatino929.univision.com
	KRPT, The Patriot conservative talk radio (92.5), www.925thepatriot.com

Type	Name
FM Stations (cont.)	
	KRTU, Trinity University, classical, jazz, alternative (91.7), www.trinity.edu/org/krtu
	KSMG, mix, 70s, 80s 90s (105.3), www.magic1053.com
	KSTX, Texas Public Radio, news and information (89.1), www.tpr.org
	KSYM, San Antonio College, jazz, alternative (90.1), http://sacrtfnet.alamo.edu/ksym
	KJXX, pop and rock hits (102.7), www.hellojack.com
	KXPZ, contemporary Christian (91.3)
	KXTN, Tejano (107.5), www.kxtn.com
	KXXM, contemporary top 40 (96.1), www.mix961.com
	KYFS, Bible broadcasting (90.9), http://radiatorradio7.com/radio/KYFS-BBN-International-909-FM-San-Antonio-TX/html
	KZEP, classic rock (104.5), www.kzep.com
	KZLV, contemporary Christian (91.3), www.klove.com
AM Stations	
	KAHL, adult standards (1310), www.call1310.com
	KBIB, Spanish gospel (1000), www.kbib.org
	KCHL, inspirational (1480), www.kchl.org
	KCOR, Spanish talk, music (1350), www.kcor1350.univision.com
	KDRY, religious (1100), www.kdry.com
	KEDA, Tejano (1540), www.kedaradio.com
	KENS, Radio Disney (1160), radio.disney.go.com
	KKYX, country (680), www.kkyx.com
	KLUP, conservative talk (930), www.klup.com
	KONO, simulcast, oldies (860), www.kono1011.com
	KSAH, Spanish regional music (720)
	KYTY, contemporary Christian (810), www.star810.com
	KSLR, bilingual religious (630), www.kslr.com
	KTKR, sports news/talk (760), www.ticketsports.com
	KTSA, news/talk (550), www.ktsa.com
	KZDC, ESPN radio (1250), www.1250zone.com
	WOAI, news/talk, sports (1200), www.woai.com

8.4 Informational Materials

Informational materials and documentation of the public workshops and their content were prepared by the consultant team and submitted to the SAAS in electronic form so it could be uploaded easily to the website. These included a PowerPoint presentation, registration materials, handouts, presentation boards, information updates and meeting summaries (Appendix I).

8.5 Public Meeting and Hearing

The study included a public meeting and hearing on October 21, 2014 held at the Prairie Mesa Room of the Holiday Inn Airport, 77 NE Loop 410, 78216 and on November 10, 2014 held at the Holy Spirit Church on 8134 Blanco Road, 78216 to ensure that every interested party had the opportunity to obtain information on the study process and results. The meetings were advertised through public notices in the local newspaper; consisted of information stations and a brief presentation to provide background and answer any questions; and, included an additional station for either written comments or oral comments to

a stenographer. Comments were also able to be received via the Airport website. Appendix I presents the materials related to the Public Meetings and Volume II provides a copy of all comments received.

8.6 Public Input Received during the Study Process

The draft documentation was available for public review and comment from September 29, 2014 to November 13, 2014 at the locations identified in Table 22:

Table 22 – Locations for Document Review
Source: Ximenes & Associates, Inc.

Facility	Hours Available for Review
Airport Environmental Stewardship Office 457 Sandau Road San Antonio, TX 78216	7:45 am to 4:30 pm - Monday through Friday By appointment only ¹
Central Library 600 Soledad San Antonio, TX 78205	9:00 am to 9:00 pm - Monday through Thursday 9:00 am to 5:00 pm - Friday and Saturday 11:00 am to 5:00 pm - Sunday
Thousand Oaks Branch Library 4618 Thousand Oaks San Antonio, TX 78233	Noon to 8:00 pm - Monday and Wednesday 10:00 am to 6:00 pm - all other days
Tobin Branch Library at Oakwell 4134 Harry Wurzbach San Antonio, TX 78209	Noon to 8:00 pm - Monday and Wednesday 10:00 am to 6:00 pm - all other days
Brookhollow Branch Library 530 Heimer San Antonio, TX 78232	Noon to 8:00 pm - Monday and Wednesday 10:00 am to 6:00 pm - all other days
Westfall Branch Library 6111 Rosedale Ct. San Antonio, TX 78201	Noon to 8:00 pm - Monday and Wednesday 10:00 am to 6:00 pm - all other days

Please contact Steven Southers at (210) 207-3402 to make an appointment to review the document at the Airport Environmental Stewardship Office.

The draft documents were also available on the airport website: <https://www.sanantonio.gov/SAT.aspx>

The document availability provided opportunity for the interested public to review and submit any comments in accordance with 14 CFR Part 150 §150.21(b). All public comments received during the review period and at the public meetings are included in Volume II.

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Appendix A Introduction to Noise Evaluation

This appendix introduces the acoustic metrics that provide a basis for evaluating and understanding a broad range of noise situations. Understanding these fundamental terms or metrics is helpful in explaining and comprehending the noise environment around an airport.

Noise is a complex physical quantity. To provide a basic reference, this appendix provides an introduction to fundamentals of acoustics and noise terminology (Section A.1), the effects of weather on outdoor sound propagation (Section A.2), and the effects of aircraft noise on people (Section A.3).

A.1 Introduction to Noise Terminology

To assist reviewers in interpreting the complex noise metrics used in evaluating airport noise, this appendix introduces the following acoustical descriptors of noise, roughly in increasing degree of complexity:

Decibel, dB
A-Weighted Decibel
Maximum A-Weighted Sound Level, L_{max}
Sound Exposure Level, SEL
Equivalent A-Weighted Sound Level, L_{eq}
Day-Night Average Sound Level, DNL or L_{dn}

A.1.1 Decibel, dB

All sounds come from a sound source -- a musical instrument, a voice speaking, an airplane passing overhead. It takes energy to produce sound. The sound energy produced by any sound source is transmitted through the air in sound waves -- tiny, quick oscillations of pressure just above and just below atmospheric pressure. These oscillations, or sound pressures, impinge on the ear, creating the sound we hear.

Our ears are sensitive to a wide range of sound pressures. Although the loudest sounds that we hear without pain have about one million times more energy than the quietest sounds we hear, our ears are incapable of detecting small differences among these pressures. Thus, to better match how we hear this sound energy, we compress the total range of sound pressures to a more meaningful range by introducing the concept of sound pressure level.

Sound pressure levels (SPL) are measured in decibels (or dB). SPL, as shown in the equation below, is a logarithmic quantity reflecting the ratio of the two pressures, the numerator being the pressure of the sound source of interest (P_{source}), and the denominator being a reference pressure ($P_{\text{reference}}$), which is the quietest sound we can hear:

$$\text{Sound Pressure Level (SPL)} = 20 * \log \left(\frac{P_{\text{source}}}{P_{\text{reference}}} \right) \text{dB}$$

The logarithmic conversion of sound pressure to SPL means that the quietest sound that we can hear (the reference pressure) has a sound pressure level of about 0 dB, while the loudest sounds that we hear without pain have sound pressure levels of about 120 dB. Most sounds in our day-to-day environment have sound pressure levels on the order of 30 to 100 dB.

Because decibels are logarithmic quantities, combining decibels is unlike common arithmetic. For example, if two sound sources each produce 100 dB operating individually and they are then operated together, they produce 103 dB -- not the 200 decibels we might expect. Four 100-dB sources operating

simultaneously produce another three decibels of noise, resulting in a total SPL of 106 dB. For every doubling of the number of equal sources, the SPL goes up another three decibels. A tenfold increase in the number of sources makes the sound pressure level increase 10 dB.

If one noise source is much louder than another, the two sources operating together will produce virtually the same SPL (and sound to our ears) that the louder source would produce alone. For example, a 100 dB source plus an 80 dB source produce approximately 100 dB of noise when operating together (actually, 100.04 dB). The louder source "masks" the quieter one. But if the quieter source gets louder, it will have an increasing effect on the total SPL such that, when the two sources are equal, as described above, they produce a level three decibels above the sound of either one by itself.

People hear changes in sound level according to the following rules of thumb: (1) a 6 to 10 dB increase in the sound pressure level is sometime described to be about a doubling of loudness, and (2) changes in SPL of less than about three decibels are not readily detectable outside of a laboratory environment.

A.1.2 A-Weighted Decibel

An important characteristic of sound is its frequency, or "pitch". This is the per-second rate of repetition of the sound pressure oscillations as they reach our ear, expressed in units known as Hertz (Hz).

When analyzing the total noise of any source, acousticians often break the noise into frequency components (or bands) to determine how much is low-frequency noise, how much is middle-frequency noise, and how much is high-frequency noise. This breakdown is important for two reasons:

- ☐ Our ear is better equipped to hear mid and high frequencies and is less sensitive to lower frequencies. Thus, we find mid- and high-frequency noise more annoying.
- ☐ Engineering solutions to a noise problem are different for different frequency ranges. Low-frequency noise is generally harder to control.

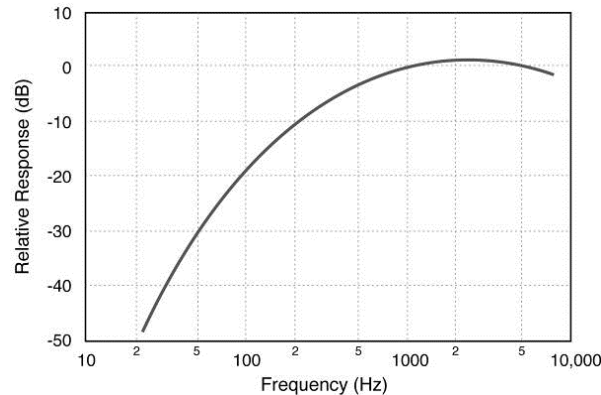
The normal frequency range of hearing for most people extends from a low of about 20 Hz to a high of about 10,000 to 15,000 Hz. People respond to sound most readily when the predominant frequency is in the range of normal conversation, typically around 1,000 to 2,000 Hz. The acoustical community has defined several "filters," which approximate this sensitivity of our ear and thus, help us to judge the relative loudness of various sounds made up of many different frequencies.

The "A" filter (or "A weighting") does this best for most environmental noise sources. A-weighted sound levels are measured in decibels, just like unweighted. To avoid ambiguity, A-weighted sound levels should be identified as such (e.g. "an A-weighted sound level of 85 dB") or stated up front that all noise levels presented in this document are A-weighted unless otherwise specified (as in this study).

Government agencies in the U.S (and most governments worldwide) recommend or require the use of A-weighted sound levels for measuring, modeling, describing, and assessing aircraft sound levels (and sound levels from most other transportation and environmental sources).

Figure A-1 depicts A-weighting adjustments to sound from approximately 20 Hz to 10,000 Hz.

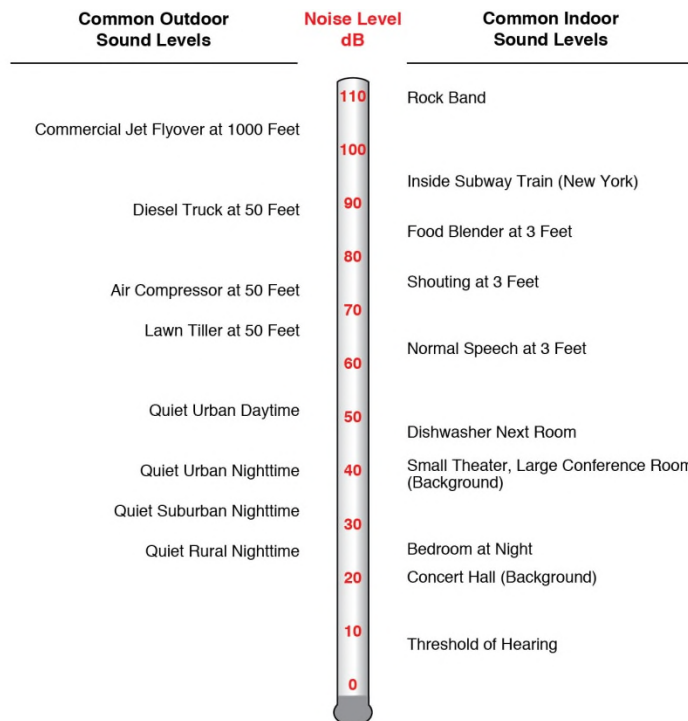
Figure A-1 A-Weighting Frequency Response
Source: HMMH



The A-weighted filter significantly de-emphasizes those parts of the total noise at lower and higher frequencies (below about 500 Hz and above about 10,000 Hz) where we do not hear as well. The filter has very little effect, or is nearly "flat", in the middle range of frequencies between 500 and 10,000 Hz where we hear quite easily. Because this filter generally matches our ears' sensitivity, sounds having higher A-weighted sound levels are usually judged to be louder than those with lower A-weighted sound levels. It is for this reason that acousticians normally use A-weighted sound levels to evaluate environmental noise sources.

Figure A-2 depicts representative sound levels for a variety of common sounds.

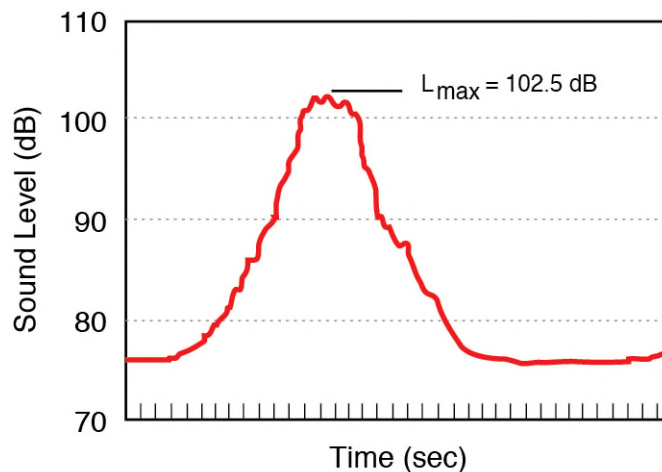
Figure A-2 Representative Sound Levels
Source: HMMH



A.1.3 Maximum Sound Level, L_{max}

An additional dimension to environmental noise is that noise levels vary with time. For example, the sound level increases as an aircraft approaches, then falls and blends into the background as the aircraft recedes into the distance (though even the background varies as birds chirp, the wind blows, or a vehicle passes by). This is illustrated in Figure A-3.

Figure A-3 Variation in the Sound Level over Time
Source: HMMH



Because of this variation, it is often convenient to describe a particular noise "event" by its maximum sound level, abbreviated as L_{max} . In Figure A-3 the L_{max} is approximately 102.5 dB.

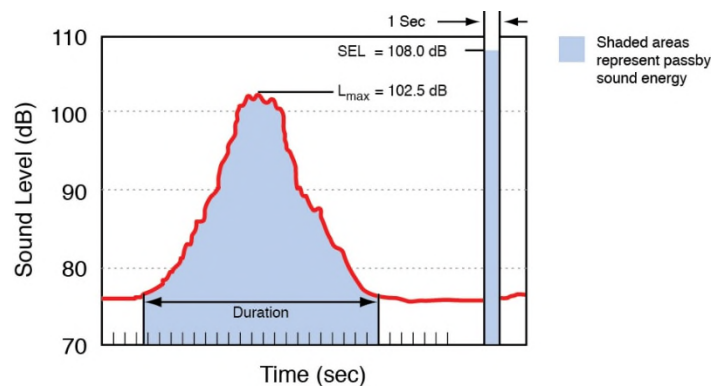
While the maximum level is easy to understand, it suffers from a serious drawback when used to describe the relative "noisiness" of an event such as an aircraft flyover; i.e., it describes only one dimension of the event and provides no information on the event's overall, or cumulative, noise exposure. In fact, two events with identical maximum levels may produce very different total exposures. One may be of very short duration, while the other may continue for an extended period and be judged much more annoying. The next section introduces a measure that accounts for this concept of a noise "dose," or the cumulative exposure associated with an individual "noise event" such as an aircraft flyover.

A.1.4 Sound Exposure Level, SEL

The most commonly used measure of cumulative noise exposure for an individual noise event, such as an aircraft flyover, is the Sound Exposure Level, or SEL. SEL is a summation of the sound energy over the entire duration of a noise event. SEL expresses the accumulated energy in terms of the one-second-long steady-state sound level that would contain the same amount of energy as the actual time-varying level. In simple terms, SEL "compresses" the energy into a single second.

Figure A-4 depicts this compression.

Figure A-4 Graphical Depiction of Sound Exposure Level
Source: HMMH



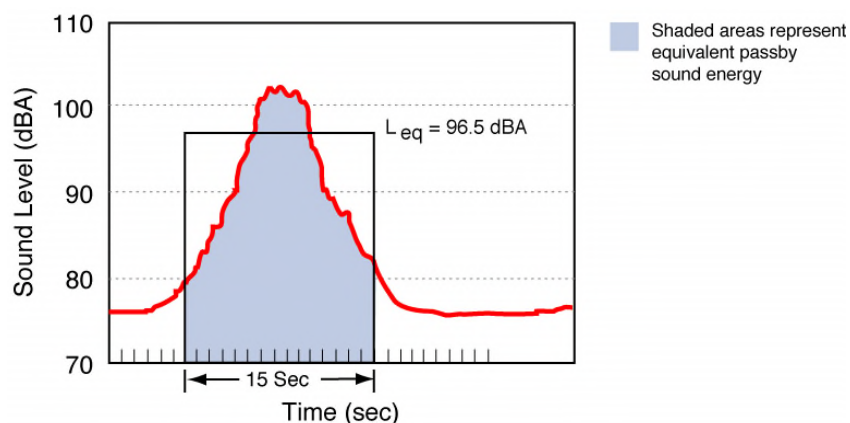
Note that because SEL is normalized to one second, it almost always will be a higher value than the event's L_{max} . In fact, for most aircraft flyovers, SEL is on the order of 5 to 12 dB higher than L_{max} . SEL provides a basis for comparing noise events that generally match our impression of their overall "noisiness," including the effects of both duration and level; the higher the SEL, the more annoying a noise event is likely to be.

A.1.5 Equivalent Sound Level, L_{eq}

The Equivalent Sound Level, abbreviated L_{eq} , is a measure of the exposure resulting from the accumulation of sound levels over a particular period of interest; e.g., an hour, an eight-hour school day, nighttime, or a full 24-hour day. The applicable period should always be identified or clearly understood when discussing the metric.

L_{eq} may be thought of as a constant sound level over the period of interest that contains as much sound energy as the actual varying level. It is a way of assigning a single number to a time-varying sound level. This is illustrated in Figure A-5.

Figure A-5 Example of a One-Minute Equivalent Sound Level
Source: HMMH



In airport noise applications, L_{eq} is often presented for consecutive one-hour periods to illustrate how the hourly noise dose rises and falls throughout a 24-hour period as well as how certain hours may be significantly affected by only a few loud aircraft.

A.1.6 Day-Night Average Sound Level, DNL or Ldn

The previous sections address noise measures that account for short term fluctuations in levels as sound sources come and go affecting the overall noise environment. The FAA requires that airports use a more complex measure of noise exposure than either a single, peak event metric (L_{max}) or a single event total energy metric (SEL). Therefore, the Day-Night Average Sound Level (DNL or Ldn) was developed to represent a 24-hour noise dose. DNL is essentially equal to the 24-hour L_{eq} , with one important adjustment: noise occurring at night – from 10 pm through 7 am – is “factored up.” The factoring up can be made in one of two ways:

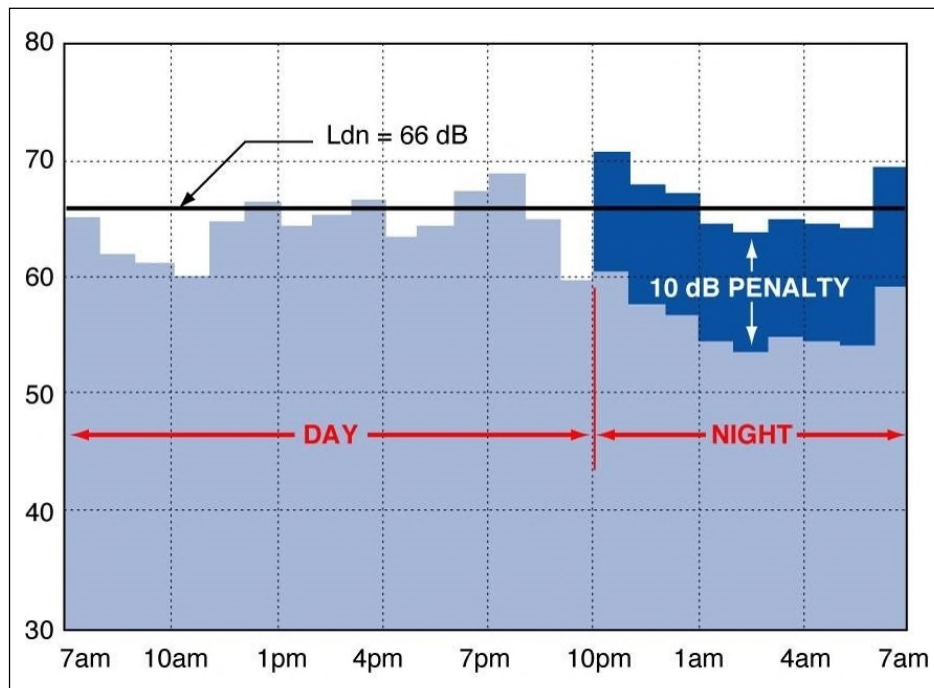
- Weighting, by counting each nighttime noise contribution 10 times; e.g., if DNL is calculated by summing the SEL of aircraft operations over a 24-hour period, each nighttime operation is represented by 10 identical daytime operations.
- Penalizing, by adding 10 dB to all nighttime noise contributions; e.g., if DNL is calculated from the SEL of aircraft operations occurring over a 24-hour period, 10 dB are added to the SEL values for nighttime operations.

The 10 dB adjustment accounts for our greater sensitivity to nighttime noise and the fact lower ambient levels at night tend to make noise events, such as aircraft flyovers, more intrusive.

Figure A-6 depicts this adjustment graphically.

Figure A-6 Example of a Day-Night Average Sound Level Calculation

Source: HMMH



Most aircraft noise studies use computer-generated estimates of DNL, determined by adding up the energy from the SELs for each event, with the 10 dB adjustment applied to night operations. Computed values of DNL are often depicted as noise contours reflecting lines of equal exposure around an airport (much as topographic maps indicate contours of equal elevation). The contours usually reflect long-term (annual average) operating conditions, taking into account the average flights per day, how often each

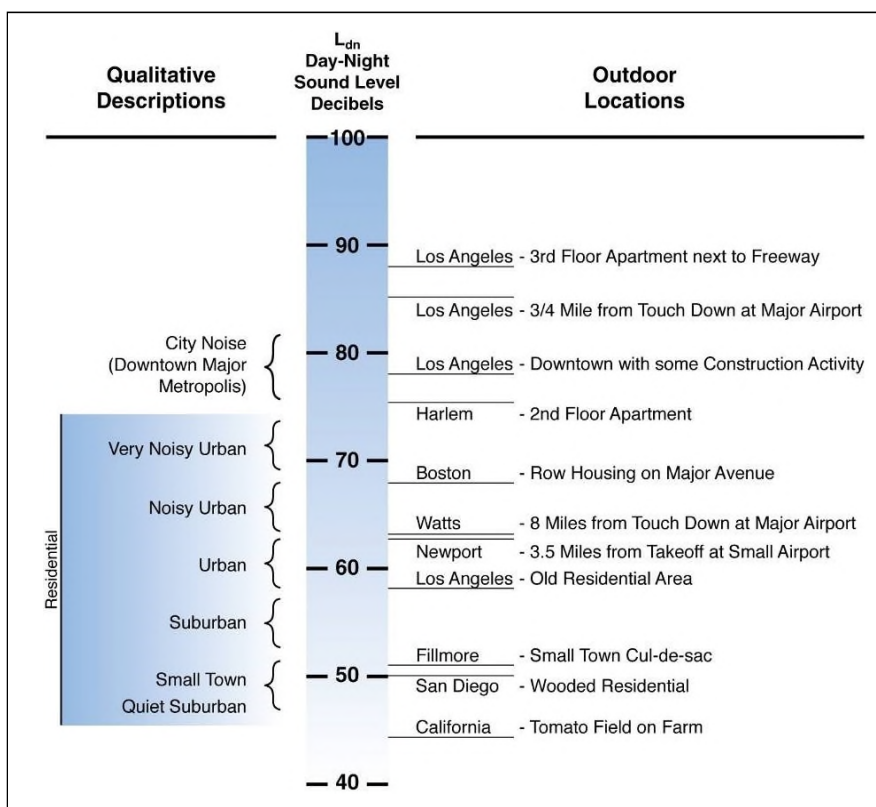
runway is used throughout the year, and where over the surrounding communities aircraft normally fly. Alternative time frames may also be helpful in understanding shorter term aspects of a noise environment.

Why is DNL used to describe noise around airports? The U.S. Environmental Protection Agency identified DNL as the most appropriate measure of evaluating airport noise based on the following considerations:

- The measure should be applicable to the evaluation of pervasive long-term noise in various defined areas and under various conditions over long periods of time.
- The measure should correlate well with known effects of the noise environment on the individual and the public.
- The measure should be simple, practical, and accurate. In principle, it should be useful for planning as well as for enforcement or monitoring purposes.
- The required measurement equipment, with standard characteristics, should be commercially available.
- The measure should be closely related to existing methods currently in use.
- The single measure of noise at a given location should be predictable, within an acceptable tolerance, from knowledge of the physical events producing the noise.
- The measure should lend itself to small, simple monitors which can be left unattended in public areas for long periods of time.

Representative values of DNL range from a low of 40 to 45 dB in extremely quiet, isolated locations, to highs of 80 or 85 dB immediately adjacent to a busy truck route. DNL would typically be in the range of 50 to 55 dB in a quiet residential community and 60 to 65 dB in an urban residential neighborhood. Figure A-7 presents representative outdoor DNL values measured at various U.S. locations.

Figure A-7 Examples of Measured Day-Night Average Sound Levels
Source: USEPA 1974, p.14.



A.2 Effects of Weather on Outdoor Sound Propagation

Atmospheric effects that can influence the propagation of sound include (in roughly increasing order of importance) humidity and precipitation, temperature and wind gradients, and turbulence (or gustiness). The effects of wind, and in particular, of turbulence, generally are of more importance than other factors, however, the importance of temperature gradients is enhanced under calm wind conditions, and, under unusual conditions, can be extreme. Attenuation caused by humidity is generally of small relative importance to the other effects.

Influence of Humidity and Precipitation

In general, humidity and precipitation have little effect on the propagation of sound. Attenuation due to humidity only becomes important with high-frequency noise under fairly calm wind conditions. Rain, snow, and fog also have little, if any noticeable effect on sound propagation. A substantial body of empirical data supports these conclusions¹.

Influence of Temperature

The velocity of sound in the atmosphere is dependent upon the air temperature², and if the temperature varies at different heights above the ground, the sound will travel in curved paths rather than straight

¹Ingard, Uno. "A Review of the Influence of Meteorological conditions on Sound Propagation," *Journal of the Acoustical Society of America*, Vol. 25, No. 3, May 1953, p. 407.

²In dry air, the approximate velocity of sound can be obtained from the relationship:

lines. Normally, during the daytime, the temperature decreases with increasing height; this condition, characterized by a negative temperature gradient, is known as temperature lapse. In temperature lapse conditions, sound waves are refracted upwards and an acoustical shadow zone may exist at some distance from the noise source.

Under certain weather conditions, a layer of cool air may be trapped beneath a layer of warmer air. This condition, known as a temperature inversion, is prevalent throughout many regions in the evening, at night, and early in the morning when heat absorbed by the ground during the day is released into the night sky through radiation³. The effect of an inversion is just the opposite of lapse conditions; sound propagating through the atmosphere refracts downward. Under inversion conditions, no shadow zones can be formed, and, barring effects due to terrain or other obstructions, sound levels at observer locations are not affected.

Often, however, the downward refraction caused by temperature inversions allows sound rays with originally upward-sloping paths to bypass obstructions and ground effects. As a result, audibility of distant sounds is often somewhat better at night (during the most common time for temperature inversions) than in the daytime⁴. Under extreme conditions, one study found that noise from ground-borne aircraft may be amplified 15 to 20 dB by a temperature inversion. In a similar study, noise caused by an aircraft on the ground registered a higher level at an observer location 1.8 miles away than at a second observer location only 0.2 miles from the aircraft⁵.

Influence of Wind

Just as there is a temperature gradient in the atmosphere, there is also a wind gradient; typically, higher wind speeds exist at greater heights above the ground. The wind gradient affects sound propagation similarly to the temperature gradient by causing upward or downward refraction of sound. Because temperature is a scalar quantity (i.e., described by magnitude alone with no regard for direction), the refraction of sound caused by variations in the vertical gradient is the same in all horizontal (compass) directions⁶. Wind, on the other hand, is a vector quantity (described by both magnitude and direction) and affects sound propagation differently in various directions. Wind results in downward refraction downwind and upward refraction upwind with a shadow zone formed in the upwind direction. Receivers in a predominately downwind direction will experience higher sound levels, and those upwind will experience lower sound levels. Sound propagating perpendicular to the wind direction will not be affected.

$c = 331 + 0.6T_c$ (c in meters per second, T_c in degrees Celsius). Pierce, Allan D., *Acoustics: An Introduction to its Physical Principles and Applications*. McGraw-Hill. 1981. p. 29.

³Embleton, T.F.W., G.J. Thiessen, and J.E. Piercy, "Propagation in an inversion and reflections at the ground," *Journal of the Acoustical Society of America*, Vol. 59, No. 2, February 1976, p. 278.

⁴Ingard, p. 407.

⁵Dickinson, P.J., "Temperature Inversion Effects on Aircraft Noise Propagation," (Letters to the Editor) *Journal of Sound and Vibration*. Vol. 47, No. 3, 1976, p. 442.

⁶Piercy, J.E. and T.F.W. Embleton, "Review of noise propagation in the atmosphere," *Journal of the Acoustical Society of America*, Vol. 61, No. 6, June 1977, p. 141.

The refraction caused by vertical gradients of wind is additive to the refraction due to temperature gradients⁷. One study suggests that for frequencies greater than 500 Hz, the combined effects of these gradients tends towards two extreme values: approximately 0 dB in conditions of downward refraction (inversion or downwind propagation) and -20 dB in upward refraction conditions (lapse or upwind propagation). At lower frequencies, the effects of refraction due to wind and temperature gradients are less pronounced⁸.

The preceding discussion of the influence of wind is somewhat idealized due to the assumption of laminar conditions (i.e., the assumption of no turbulence). In reality, a wind is generally “gusty,” and sound levels heard at remote receiver locations will fluctuate with gustiness. In addition, gustiness can cause considerable attenuation of sound through the effects of eddies traveling with the wind. The attenuation due to eddies is essentially the same in all directions, with or against the flow of the wind, and can often mask the refractive effects discussed above⁹.

A.3 The Effects of Aircraft Noise on People

To residents around airports, aircraft noise can be an annoyance and a nuisance. It can interfere with conversation and listening to television, it can disrupt classroom activities in schools, and it can disrupt sleep. Relating these effects to specific noise metrics helps in the understanding of how and why people react to their noise environment.

A.3.1 Speech interference

A primary effect of aircraft noise is its tendency to drown out or “mask” speech, making it difficult to carry on a normal conversation. The sound level of speech decreases as the distance between a talker and listener increases. As the background sound level increases, it becomes harder to hear speech. Figure A-8 presents typical distances between talker and listener for satisfactory outdoor conversations, in the presence of different steady A-weighted background noise levels for raised, normal, and relaxed voice effort. As the background level increases, the talker must raise his/her voice, or the individuals must get closer together to continue talking.

As indicated in the figure, “satisfactory conversation” does not always require hearing every word; 95% intelligibility is acceptable for many conversations. Listeners can infer a few unheard words when they occur in a familiar context. However, in relaxed conversation, we have higher expectations of hearing speech and generally require closer to 100% intelligibility. Any combination of talker-listener distances and background noise that falls below the bottom line in Figure A-8 (thus assuring 100% intelligibility) represents an ideal environment for outdoor speech communication and is considered necessary for acceptable indoor conversation as well.

One implication of the relationships in Figure A-8 is that for typical communication distances of 3 or 4 feet (1 to 1.5 meters), acceptable outdoor conversations can be carried on in a normal voice as long as the background noise outdoors is less than about 65 dB. If the noise exceeds this level, as might occur when an aircraft passes overhead, intelligibility would be lost unless vocal effort increased or communication distance decreased.

Indoors, typical distances, voice levels, and intelligibility expectations generally require a background level less than 45 dB. With windows partly open, housing generally provides about 10 to 15 dB of interior-to-exterior noise level reduction. Thus, if the outdoor sound level is 60 dB or less, there is a

⁷Piercy and Embleton, p. 1412. Note, in addition, that as a result of the scalar nature of temperature and the vector nature of wind, the following is true: under lapse conditions, the refractive effects of wind and temperature add in the upwind direction and cancel each other in the downwind direction. Under inversion conditions, the opposite is true.

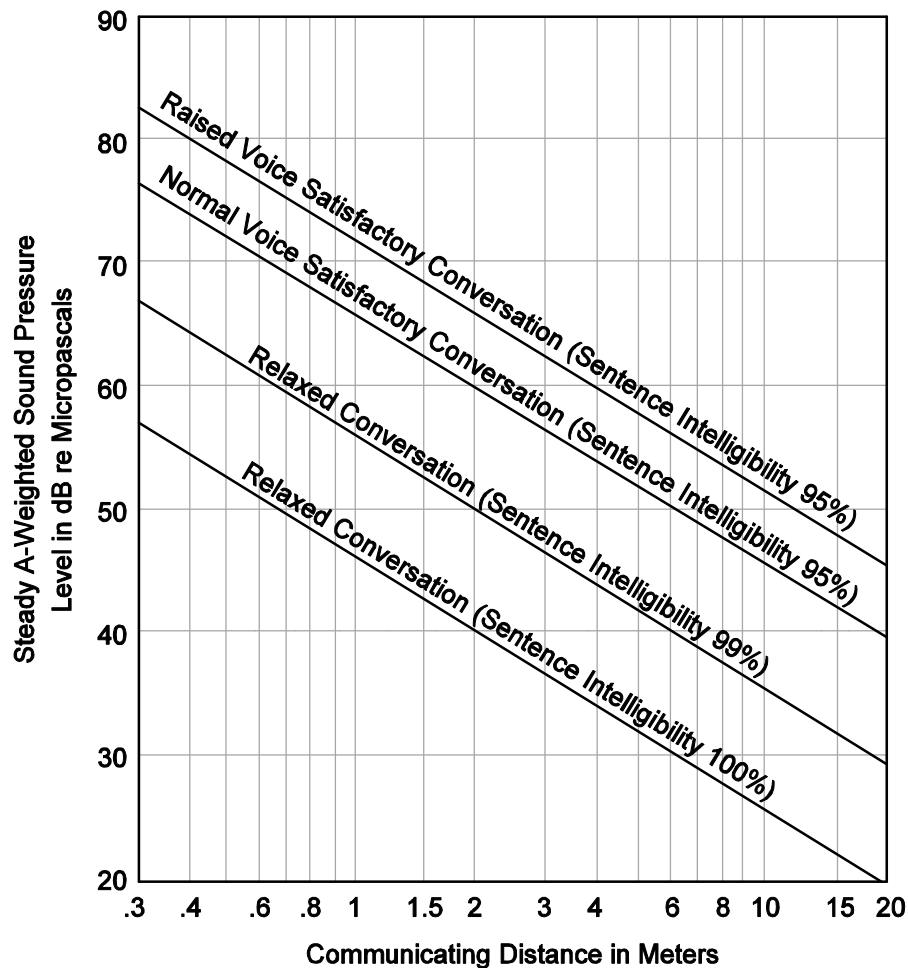
⁸Piercy and Embleton, p. 1413.

⁹Ingard, pp. 409-410.

reasonable chance that the resulting indoor sound level will afford acceptable conversation inside. With windows closed, 25 dB of attenuation is typical.

Figure A-8 Outdoor Speech Intelligibility

Source: United States Environmental Protection Agency, Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety, March 1974, p. D-5



A.3.2 Sleep interference

Research on sleep disruption from noise has led to widely varying observations. In part, this is because (1) sleep can be disturbed without awakening, (2) the deeper the sleep the more noise it takes to cause arousal, (3) the tendency to awaken increases with age, and other factors.

Figure A-9 shows a summary of findings on the topic.

Figure A-9 Recommended Sleep Disturbance Dose-Response Relationship

Source: Federal Interagency Committee on Aviation Noise (FICAN), “Effects of Aviation Noise on Awakenings from Sleep”, June 1997, page 5

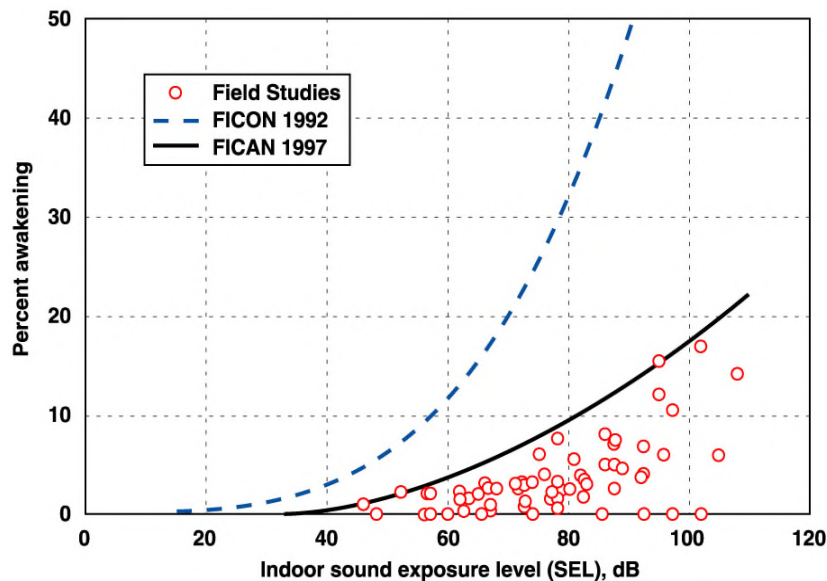


Figure A-9 uses indoor SEL as the measure of noise exposure; recent work supports the use of this metric in assessing sleep disruption. However, awakening data presented in the form of Figure A-9 apply to only one noise event; it says nothing about what happens with a full night of noise events of different levels. The American National Standards Institute (ANSI) has published a standard that provides a method for estimating the number of people awakened at least once from a full night of noise events: ANSI/ASA S12.9-2008 / Part 6, “Quantities and Procedures for Description and Measurement of Environmental Sound – Part 6: Methods for Estimation of Awakenings Associated with Outdoor Noise Events Heard in Homes.” This method can use the information on single events computed by a program such as the FAA’s Integrated Noise Model, to compute awakenings.

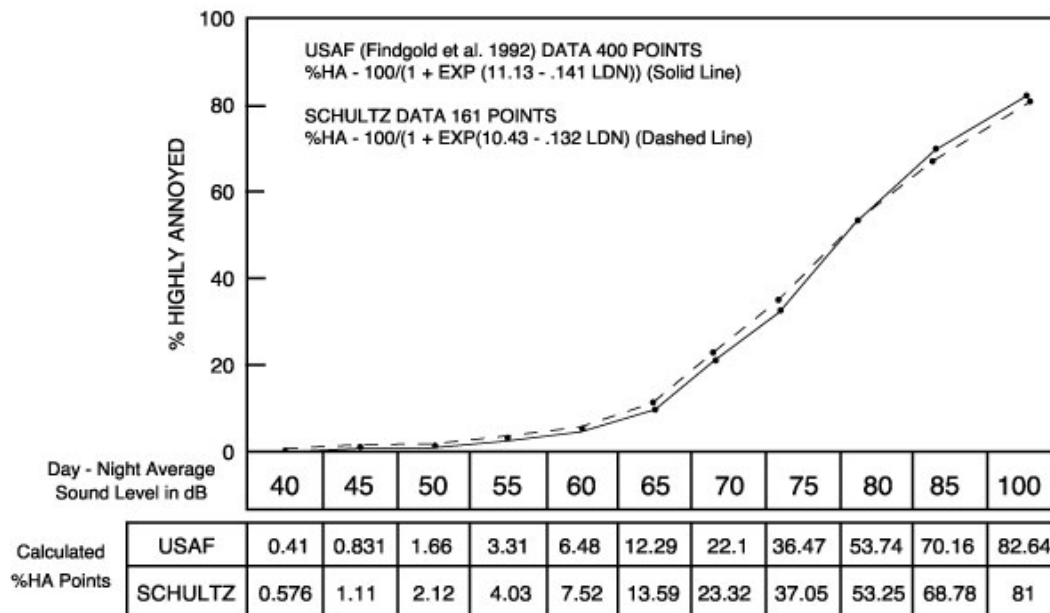
A.4 Community Annoyance

Numerous psychoacoustic surveys provide substantial evidence that individual reactions to noise vary widely for a given noise exposure level. However, since the early 1970’s, researchers have determined (and subsequently confirmed) that a community’s aggregate response is generally predictable and relates reasonably well to measures of cumulative noise exposure such as DNL.

Figure A-10 shows the widely recognized relationship between environmental noise and the percentage of people “highly annoyed,” with annoyance being the key indicator of community response usually cited in this body of research.

Figure A-10 Percentage of People Highly Annoyed

Source: Federal Interagency Committee on Noise, Vol. 2, Technical Report. "Federal Agency Review of Selected Airport Noise Analysis Issues". August 1992. (From data provided by USAF Armstrong Laboratory). pp. 3-6.

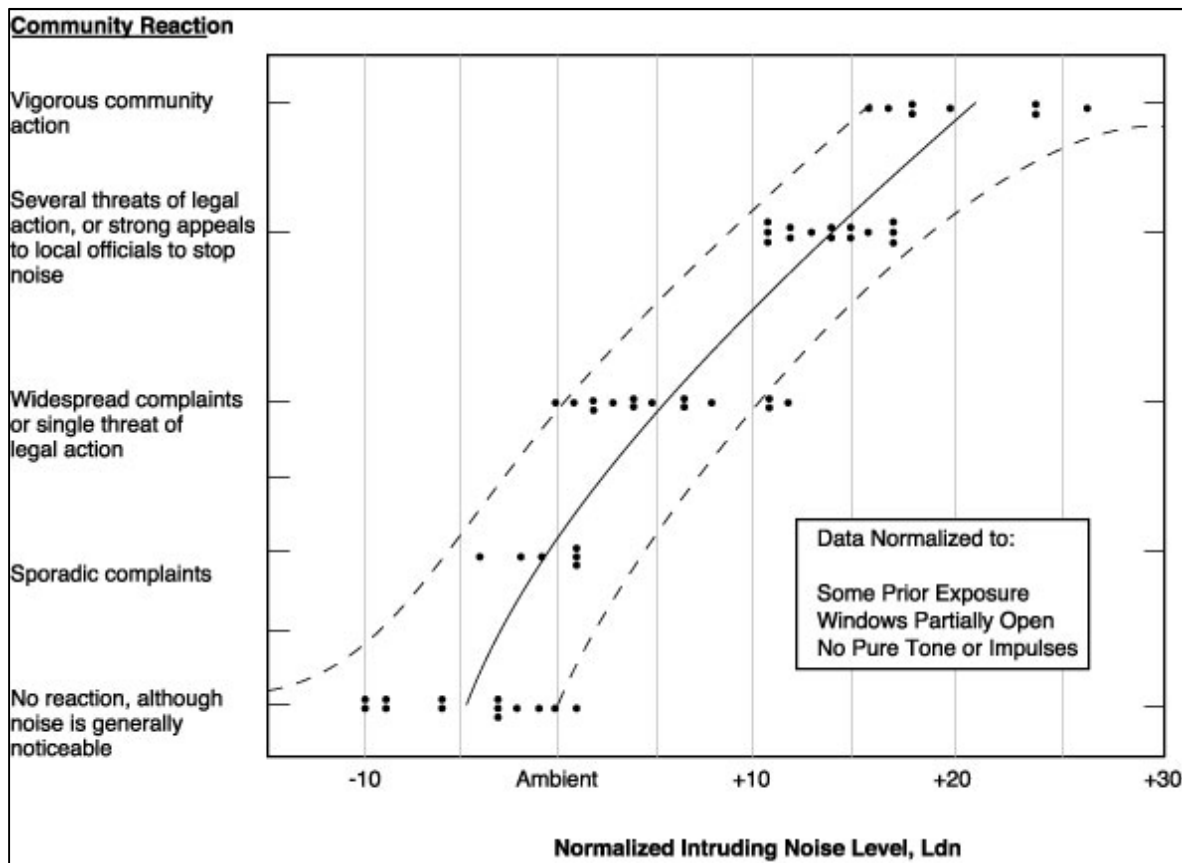


Based on data from 18 surveys conducted worldwide, the curve indicates that at levels as low as DNL 55 dB, something on the order of 3 to 4 percent of the persons would be highly annoyed, whereas this percentage of persons annoyed increases more rapidly as exposure increases above DNL 65 dB.

Separate work by the EPA has shown that overall community reaction to a noise environment is also dependent on DNL. This relationship is shown in Figure A-11. Levels have been normalized to the same set of exposure conditions to permit valid comparisons between ambient noise environments. Data summarized in Figure A-11 suggest that little reaction would be expected for intrusive noise levels five decibels below the ambient, while widespread complaints can be expected as intruding noise exceeds background levels by about five decibels. Vigorous action is likely when the background is exceeded by 20 dB.

Figure A-11 Community Reaction as a Function of Normalized Outdoor DNL

Source: U.S. EPA, "Community Noise," NTID300.3, December 1971, derived from Figure 25, page 63.



A.5 Land Use Compatibility

The Federal Aviation Administration Part 150 Airport Noise Compatibility Planning guidelines provide the following:

1. A basis for comparing existing noise conditions to the effects of noise abatement procedures and/or forecast changes in airport activity.
2. A quantitative basis for identifying potential noise impacts.

Both of these functions require the application of objective criteria for evaluating noise impacts. 14 CFR Part 150 provides the FAA's recommended guidelines for noise-land use compatibility evaluation. Table A-1 reproduces the FAA guidelines.

These guidelines represent a compilation of the results of extensive scientific research into noise-related activity interference and attitudinal response. However, reviewers should recognize the highly subjective nature of response to noise, and that special circumstances can affect individuals' tolerance. For example, a high non-aircraft background noise level can reduce the significance of aircraft noise, such as in areas

constantly exposed to relatively high levels of traffic noise. Alternatively, residents of areas with unusually low background levels may find relatively low levels of aircraft noise annoying.

Response may also be affected by expectation and experience. People may get used to a level of exposure that guidelines indicate may be unacceptable, and changes in exposure may generate response that is far greater than that which the guidelines might suggest.

The cumulative nature of DNL means that the same level of noise exposure can be achieved in an essentially infinite number of ways. For example, a reduction in a small number of relatively noisy operations may be counterbalanced by a much greater increase in the number of relatively quiet flights, with no net change in DNL. Residents of the area may be highly annoyed by the increased frequency of operations, despite the seeming maintenance of the noise status quo.

With these cautions in mind, the Part 150 guidelines can be applied to the DNL contours to identify the potential types, degrees and locations of incompatibility. Measurement of the land areas involved can provide a quantitative measure of impact that allows a comparison of at least the gross effects of existing or forecast operations.

14 CFR Part 150 guidelines indicate that all land uses normally are compatible with aircraft noise at exposure levels below 65 DNL. This limit is supported in a formal way by standards adopted by the U. S. Department of Housing and Urban Development (HUD). The HUD standards address whether sites are eligible for Federal funding support. These standards, set forth in Part 51 of the Code of Federal Regulations, define areas with DNL exposure not exceeding 65 dB as acceptable for funding. Areas exposed to noise levels between DNL 65 and 75 are "normally unacceptable," and require special abatement measures and review. Those at 75 and above are "unacceptable" except under very limited circumstances.

14 CFR Part 150 permits airports and local land use control jurisdictions to adopt land use compatibility criteria that differ from the guidelines reproduced in Table A-1.

Table A-1 14 CFR Part 150 Noise / Land Use Compatibility Guidelines

Source: 14 CFR Part 150, Appendix A, Table 1

Land Use	Yearly Day-Night Average Sound Level, DNL, in Decibels (Key and notes on following page)					
	<65	65-70	70-75	75-80	80-85	>85
Residential Use						
Residential other than mobile homes and transient lodgings	Y	N(1)	N(1)	N	N	N
Mobile home park	Y	N	N	N	N	N
Transient lodgings	Y	N(1)	N(1)	N(1)	N	N
Public Use						
Schools	Y	N(1)	N(1)	N	N	N
Hospitals and nursing homes	Y	25	30	N	N	N
Churches, auditoriums, and concert halls	Y	25	30	N	N	N
Governmental services	Y	Y	25	30	N	N
Transportation	Y	Y	Y(2)	Y(3)	Y(4)	Y(4)
Parking	Y	Y	Y(2)	Y(3)	Y(4)	N
Commercial Use						
Offices, business and professional	Y	Y	25	30	N	N
Wholesale and retail--building materials, hardware and farm equipment	Y	Y	Y(2)	Y(3)	Y(4)	N
Retail trade--general	Y	Y	Y(2)	Y(3)	Y(4)	N
Utilities	Y	Y	Y(2)	Y(3)	Y(4)	N
Communication	Y	Y	25	30	N	N
Manufacturing and Production						
Manufacturing general	Y	Y	Y(2)	Y(3)	Y(4)	N
Photographic and optical	Y	Y	25	30	N	N
Agriculture (except livestock) and forestry	Y	Y(6)	Y(7)	Y(8)	Y(8)	Y(8)
Livestock farming and breeding	Y	Y(6)	Y(7)	N	N	N
Mining and fishing, resource production and extraction	Y	Y	Y	Y	Y	Y
Recreational						
Outdoor sports arenas and spectator sports	Y	Y(5)	Y(5)	N	N	N
Outdoor music shells, amphitheaters	Y	N	N	N	N	N
Nature exhibits and zoos	Y	Y	N	N	N	N
Amusements, parks, resorts and camps	Y	Y	Y	N	N	N
Golf courses, riding stables, and water recreation	Y	Y	25	30	N	N

Key to Table A-1

SLUCM: Standard Land Use Coding Manual.

Y (Yes): Land use and related structures compatible without restrictions.

N (No): Land use and related structures are not compatible and should be prohibited.

NLR: Noise Level Reduction (outdoor to indoor) to be achieved through incorporation of noise attenuation into the design and construction of the structure.

25, 30, or 35: Land use and related structures generally compatible; measures to achieve NLR of 25, 30, or 35 dB must be incorporated into design and construction of structure.

Notes for Table A-1

The designations contained in this table do not constitute a Federal determination that any use of land covered by the program is acceptable or unacceptable under Federal, State, or local law. The responsibility for determining the acceptable and permissible land uses and the relationship between specific properties and specific noise contours rests with the local authorities. FAA determinations under Part 150 are not intended to substitute federally determined land uses for those determined to be appropriate by local authorities in response to locally determined needs and values in achieving noise compatible land uses.

- 1) Where the community determines that residential or school uses must be allowed, measures to achieve outdoor to indoor Noise Level Reduction (NLR) of at least 25 dB and 30 dB should be incorporated into building codes and be considered in individual approvals. Normal residential construction can be expected to provide a NLR of 20 dB, thus, the reduction requirements are often started as 5, 10, or 15 dB over standard construction and normally assume mechanical ventilation and closed windows year round. However, the use of NLR criteria will not eliminate outdoor noise problems.
- 2) Measures to achieve NLR of 25 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.
- 3) Measures to achieve NLR of 30 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.
- 4) Measures to achieve NLR of 35 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.
- 5) Land use compatible provided special sound reinforcement systems are installed.
- 6) Residential buildings require an NLR of 25.
- 7) Residential buildings require an NLR of 30
- 8) Residential buildings not permitted.

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Appendix B FAA Record of Approval of Noise Compatibility Program 2002

Part 150: Records of Approval

San Antonio International Airport, San Antonio, Texas

Approved on 9/30/02

Statements within the program measures below summarize as closely as possible the airport operator's recommendations contained in the Noise Compatibility Plan (NCP). The statements within the summaries, which precede the indicated Federal Aviation Administration (FAA) approval, disapproval, or other determination, do not represent the opinions or decisions of the FAA. The page numbers in parentheses cross-reference the submitted document/addenda.

The approvals listed herein include approvals of actions that the city of San Antonio recommends be taken by the FAA. The approvals indicate only that the actions would, if implemented, be consistent with the purposes of Part 150. These approvals do not constitute decisions to implement the actions. Later decisions concerning possible implementation of these actions may be subject to applicable environmental or other procedures or requirements.

Abatement Measure No. 1: Conduct live tests of noise abatement departure profiles.

[Pages II-2 – II-5]

Modifications to thrust and wing flap management procedures for departures can reduce the noise levels generated by individual jet aircraft departures. The potential exists for reductions in noise levels in noise-sensitive areas near the departure ends of runways if specific noise abatement departure procedures are followed. The City of San Antonio Aviation Department is working with airlines to determine what procedures work best to reduce single-event departure noise.

FAA Action: Disapproved.

Airlines have already developed procedures to comply with AC 91-53A. The purpose of the Advisory Circular is to eliminate airport-specific noise abatement departure procedures to ensure safe aircraft management. Airlines may be contacted to determine the procedures they have published for their aircraft, and these procedures may be incorporated into the noise model to determine benefits of specific procedures. At San Antonio International Airport, the distant procedure may be more appropriate, since compatible commercial development is closest to the airport. With the phase-out of Stage 2 aircraft over 75,000 pounds, the benefits from Stage 3 aircraft performing close-in noise abatement departure procedures is expected to be minimal.

Abatement Measure No. 2: Pursue additional voluntary noise abatement departure procedures to further reduce noise levels of aircraft operations.

[Pages II-5 – II-6.]

This recommendation calls for the city of San Antonio to develop voluntary measures that would need to be coordinated with the airlines and the FAA, along with corporate flight departments, fixed based operators (FBOs), and other aircraft owners and operators. These measures would

be assessed to ensure that implementation does not create additional airspace interactions, reduce capacity of the SAT or in any way compromise safety. They include: (1) Departure profiles which would increase the altitude to which an aircraft would climb at departure thrust before reducing power settings and adjusting flaps, and (2) Modifications to arrival tracks which would prevent aircraft from turning onto a short final approach over noise-sensitive areas close to the Airport.

FAA Action: Approved in part, as voluntary; disapproved in part.

The proposal to work with airlines, affected aircraft operators, and the FAA to determine the effectiveness of modified approach procedures to reduce noise impacts is approved as voluntary. The NCP discusses the possibility of reducing single-event noise levels through the adoption of voluntary approach procedures that would modify arrival tracks to prevent aircraft from turning onto a short final approach over noise-sensitive areas that do not usually receive overflights. Pilots would be encouraged to line up aircraft with the final approach heading as far out as practicable. If additional voluntary approach procedures are identified, any subsequent noise abatement measures should be recommended for inclusion in the overall NCP and submitted to the FAA for review.

Noise Abatement Departure Procedures not in accordance with AC 91-53A are disapproved. To ensure safe aircraft management, modifications to the procedures defined in AC 91-53A are not permitted.

Abatement Measure No. 3: Establish a preferential runway use program and enhance its effectiveness by extending existing runways, more specifically:

[Pages II-6 and II-11]

(a) Establish a preferential runway use program that minimizes departures on Runways 12L and 12R and arrivals on Runways 30L and 30R.

Because the highest number of noise-sensitive facilities are likely to be exposed to the highest levels of aircraft noise associated with departures on Runways 12L and 12R and arrivals on Runways 30L and 30R, the Technical Advisory Committee (TAC) decided that it would be worthwhile to determine whether an even greater percentage of departures could occur on runways other than Runways 12L and 12R and a greater percentage of arrivals could occur on runways other than Runways 30L and 30R.

(b) Extend Runway 3-21 to the northeast to enhance the effectiveness of the preferential runway use program.

The Master Plan Update recommended that Runway 3-21 be extended 1,500 feet to the northeast to a total length of 9,005 feet to improve airfield capacity. This extension would also remove the length preference of Runway 12R for air carrier departures, and make wind direction the primary determinant of runway use, thus enhancing the ability to use the runways more equally under a preferential runway use program.

(c) In addition, extend Runway 12R-30L to the northwest, allowing for the removal of the intersection of Runways 12R-30L and Runway 3-21.

Extending Runway 12R-30L approximately 400 feet to the northwest and decommissioning approximately 450 feet of the runway at its southeastern end—effectively shifting the runway to

Appendix C FAA Notification of Compliance for 2009 Noise Exposure Maps (Federal Register June 8, 2009)



27234

Federal Register / Vol. 74, No. 108 / Monday, June 8, 2009 / Notices

including whether the information will have practical utility; the accuracy of the Department's estimates of the burden of the proposed information collection; ways to enhance the quality, utility and clarity of the information to be collected; and ways to minimize the burden of the collection of information on respondents, including the use of automated collection techniques or other forms of information technology.

Issued in Washington, DC, on May 28, 2009.

Carla Maumey,

FAA Information Collection Clearance Officer, IT Enterprises Business Services Division, AFS-200.

[FR Doc. E9-13171 Filed 6-5-09; 8:45 am]

BILLING CODE 4910-13-M

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

Noise Exposure Map; San Antonio International Airport; San Antonio, TX

AGENCY: Federal Aviation Administration, DOT.

ACTION: Notice.

SUMMARY: The Federal Aviation Administration (FAA) announces its determination that the noise exposure maps submitted by the city of San Antonio, Texas for San Antonio International Airport under the provisions of 49 U.S.C. 47501 *et seq.* (Aviation Safety and Noise Abatement Act) and 14 CFR part 150 are in compliance with applicable requirements.

DATES: *Effective Date:* The effective date of the FAA's determination on the noise exposure maps is May 28, 2009.

FOR FURTHER INFORMATION CONTACT: DOT/FAA Southwest Region, Mr. Paul Blackford, 652b, 2601 Meacham Blvd., Fort Worth, Texas 76137, (817) 222-5607.

SUPPLEMENTARY INFORMATION: This notice announces that the FAA finds that the noise exposure maps submitted for San Antonio International Airport are in compliance with applicable requirements of Part 150, effective May 28, 2009. Under 49 U.S.C. section 47503 of the Aviation Safety and Noise Abatement Act (hereinafter referred to as "the Act"), an airport operator may submit to the FAA noise exposure maps which meet applicable regulations and which depict noncompatible land uses as of the date of submission of such maps, a description of projected aircraft operations, and the ways in which such operations will affect such maps. The

Act requires such maps to be developed in consultation with interested and affected parties in the local community, government agencies, and persons using the airport. An airport operator who has submitted noise exposure maps that are found by FAA to be in compliance with the requirements of Federal Aviation Regulations (FAR) Part 150, promulgated pursuant to the Act, may submit a noise compatibility program for FAA approval which sets forth the measures the operator has taken or proposes to take to reduce existing non-compatible uses and prevent the introduction of additional non-compatible uses.

The FAA has completed its review of the noise exposure maps and accompanying documentation submitted by the city of San Antonio, Texas. The documentation that constitutes the "noise exposure maps" as defined in section 150.7 of Part 150 includes: Pages 3-1 through 3-14, pages 4-1 through 4-7, Figure 5-1, and Figure 5-2. The FAA has determined that these noise exposure maps and accompanying documentation are in compliance with applicable requirements. This determination is effective on May 28, 2009.

FAA's determination on an airport operator's noise exposure maps is limited to a finding that the maps were developed in accordance with the procedures contained in appendix A of FAR Part 150. Such determination does not constitute approval of the applicant's data, information or plans, or a commitment to approve a noise compatibility program or to fund the implementation of that program. If questions arise concerning the precise relationship of specific properties to noise exposure contours depicted on a noise exposure map submitted under section 47503 of the Act, it should be noted that the FAA is not involved in any way in determining the relative locations of specific properties with regard to the depicted noise contours, or in interpreting the noise exposure maps to resolve questions concerning, for example, which properties should be covered by the provisions of section 47506 of the Act. These functions are inseparable from the ultimate land use control and planning responsibilities of local government. These local responsibilities are not changed in any way under Part 150 or through FAA's review of noise exposure maps. Therefore, the responsibility for the detailed overlaying of noise exposure contours onto the map depicting properties on the surface rests exclusively with the airport operator that submitted those maps, or with

those public agencies and planning agencies with which consultation is required under section 47503 of the Act. The FAA has relied on the certification by the airport operator, under section 150.21 of FAR Part 150, that the statutorily required consultation has been accomplished.

Copies of the full noise exposure map documentation and of the FAA's evaluation of the maps are available for examination at the following locations: (1) Federal Aviation Administration, 2601 Meacham Boulevard, Fort Worth, Texas 76137; (2) Ms. Sharon A. Robles, Senior Management Analyst, San Antonio International Airport, 9700 Airport Blvd., San Antonio, TX 78216. Questions may be directed to the individual named above under the heading **FOR FURTHER INFORMATION CONTACT**.

Issued in Fort Worth, Texas, May 28, 2009.

D. Cameron Bryan,

Acting Manager, Airports Division.

[FR Doc. E9-13172 Filed 6-5-09; 8:45 am]

BILLING CODE 4910-13-M

DEPARTMENT OF THE TREASURY

Internal Revenue Service

Proposed Collection; Comment Request for Form 8907

AGENCY: Internal Revenue Service (IRS), Treasury.

ACTION: Notice and request for comments.

SUMMARY: The Department of the Treasury, as part of its continuing effort to reduce paperwork and respondent burden, invites the general public and other Federal agencies to take this opportunity to comment on proposed and/or continuing information collections, as required by the Paperwork Reduction Act of 1995, Public Law 104-13 (44 U.S.C. 3506(c)(2)(A)). Currently, the IRS is soliciting comments concerning Form 8907, Nonconventional Source Fuel Credit.

DATES: Written comments should be received on or before August 7, 2009 to be assured of consideration.

ADDRESSES: Direct all written comments to R. Joseph Durbala, Internal Revenue Service, Room 6129, 1111 Constitution Avenue, NW., Washington, DC 20224.

FOR FURTHER INFORMATION CONTACT: Requests for additional information or copies of the form and instructions should be directed to Dawn Bidne, (202) 622-3933, at Internal Revenue Service, Room 6129, 1111 Constitution Avenue,

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Appendix D SAT Operations and Runway Use Memorandum

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MEMORANDUM

To: Carol Gregory and Steve Southers
From: Rhea Gundry and Gene Reindel
Date: August 8, 2014
Subject: Operations and Runway Use Recommendations – SAT NEM Update
Reference: HMMH Job No.306640

This memorandum provides a summary of San Antonio International Airport (SAT) aircraft operations, and runway use recommendation based on the proposed methodology (as proposed in our scope of work) to scale/balance the aircraft operations data to match the FAA's 2013 Terminal Area Forecast (TAF)¹ for the project study years 2014 and 2019.



HMMH requests SAAS approval by August 12, 2014 of the following, which are described and summarized below:

1. 2014 and 2019 annual aircraft operations
2. Runway use

1. SAT AIRCRAFT OPERATIONS FOR 2014 NEM UPDATE

Table 1 summarizes the arrivals and departures identified by FAA category as provided in the 2013 TAF.

Table 1 Summary of Operations by FAA Category

Aircraft Category	Existing Conditions 2014		Future Conditions 2019	
	Annual Operations	Annual Average Day	Annual Operations	Annual Average Day
Air Carrier	97,302	267	117,356	322
Air Taxi	22,163	61	23,656	65
General Aviation	53,938	148	55,671	153
Military	5,719	16	5,719	16
All Aircraft	179,122	491	202,402	555
Notes: (1) Totals may not add up due to rounding and (2) SAT NEM update included 223,501 operations for the existing condition and 229,651 operations for the future condition.				

Table 1 shows a total of 179,122 operations in 2014 and 202,402 operations in 2019. This directly compares to the operations in the TAF representing the existing condition (2014) and future condition (2019) for the 2014 SAT Noise Exposure Map (NEM) update. For comparison, the 2009 NEM update included 223,501 operations for the existing condition (2009) and 229,651 operations for the future condition (2014). The future condition for this NEM update represents more than a 10% reduction in aircraft operations as compared to the future condition in the 2009 NEM update as airlines are using larger aircraft to move the same amount of people with fewer operations, such as Delta Airlines using MD80 type aircraft rather than regional jet type aircraft for some of their short destination flights.

¹ FAA Terminal Area Forecast, Published February 2014, accessed 06/17/2014

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SAT 2014 NEM Operations and Runway Use
August 8, 2014
Page 2

HMMH will model the existing condition operations on 61,535 arrival tracks and 51,675 departure tracks and future condition operations on 51,076 arrival tracks and 42,815 departure tracks taken directly from the 2012 data set and first quarter of 2014² in the SAT NOMS.

2. SAT RUNWAY USE FOR 2014 NEM UPDATE

Given direction by the FAA to not include “temporary” runway closures in the model to generate the aircraft noise exposure contours, determining runway use for the existing and future conditions has challenges. Typically, runway use is determined directly from the actual aircraft operations as tabulated in the NOMS. However, there have been runway closures occurring for extended periods of time during recent years and planned to similarly occur for the five-year period of the 2014 NEM update. To determine runway use for the existing and future conditions, HMMH has accumulated data from the NOMS when the runways were all operational. Unfortunately, the data is all around the same season, winter, when Runway 04-22 experiences higher volume of operations due to wind conditions. We acquired runway use data for January through March and December 2012; and January 1 through March 15, 2014. This data was then compared to the most recent annual runway use as determined for the previous NEM update as summarized in Table 2.



Table 2 Runway Use for Modeling

Operation	Runway	Wyle 2009 NEM Update ³	Jan-March and December 2012	Jan-March 15 th 2014
Arrivals	04	9%	11%	20%
	12L	2%	2%	1%
	12R	72%	66%	59%
	22	3%	2%	3%
	30L	13%	18%	16%
	30R	1%	1%	1%
	Total	100%	100%	100%
Departures	04	32%	35%	39%
	12L	2%	3%	3%
	12R	46%	38%	35%
	22	7%	3%	3%
	30L	12%	18%	17%
	30R	1%	3%	2%
	Total	100%	100%	100%

Note: Winter months are considered November - March

We understand that the winds in San Antonio in the winter months (the recent time periods for which we have runway use with all runways operational) tend to favor use of Runway 04-22. We also understand that pilots often request to depart Runway 04 due to the proximity of the runway to the terminals and cargo facilities. We expect that pilots are not as likely to request arrival on Runway 04 so that weather is the likely main contributor to the increase use of Runway 04 arrivals, which according to Table 2 doubled in the winter months of 2012 and 2014 as compared to the 2009 NEM update. Therefore, it is difficult to determine whether the 10% increase in Runway 04 for departures is due to pilot request, weather or both.

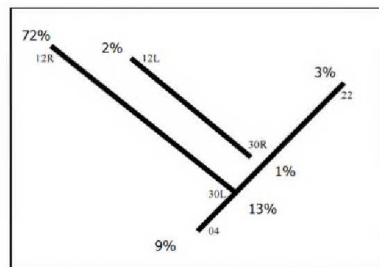
² This data set was selected using the criteria that all runways at SAT must be operational

³ Noise Exposure Map Report and Noise Compatibility Program Update for San Antonio International Airport, Prepared by Wyle for the City of San Antonio, Aviation Department, May 2009.

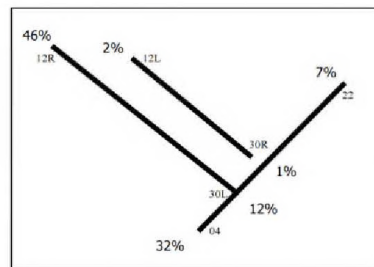
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SAT 2014 NEM Operations and Runway Use
August 8, 2014
Page 3

Given the data we have in hand as discussed above and given that there is no recent period when all runways at SAT have been operational for the majority of the year, we are unable to determine annual-average runway use assuming full operational use of all runways. As such, HMMH recommends modeling the overall runway use contained in the previous FAA approved NEM update for the 2014 NEM update. This runway use configuration is in agreement with the FAA approved EA⁴ in that the 1000 foot extension of runway 04 would not affect operational runway use at the airport. The recommended runway use for the 2014 NEM is shown below in Figure 1 for arrivals and departures.



ARRIVALS



DEPARTURES

Figure 1 HMMH Recommended Overall Runway Use

⁴ Final Environmental Assessment, Extension of Runway 3/21 and Lease of Airport Property for Commercial Development, San Antonio International Airport, San Antonio, Texas, Prepared by Booz Allen Hamilton for the City of San Antonio, Aviation Department, September 2007.

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Appendix E SAT Forecast Memorandum

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TECHNICAL MEMORANDUM

To: Eugene Reindel and Rhea Gundry
From: David A. Crandall and Sean Doyle
Date: July 16, 2014
Subject: SAT Part 150 Noise Exposure Map Update – Forecast Assumptions
Reference: HMMH Project No.: 306640.001

1. INTRODUCTION



URS Corp has retained Harris Miller Miller & Hanson (HMMH) to prepare an update to its Noise Exposure Map (NEM) and associated documentation for San Antonio International Airport (SAT) in accordance with regulations promulgated by the Federal Aviation Administration and published at Title 14 of the Code of Federal Regulations (CFR) Part 150. This effort is referred to as the “SAT NEM Update”. This memorandum presents the noise modeling future operational forecast assumptions for review and comment.

The City plans to submit the SAT NEM Update to FAA in calendar year 2014. Therefore the base year of the NEM will be 2014 and the forecast year for the NEM will be 2019.

This memorandum has one attachment, listed below:

1. Attachment A is the FAA Terminal Area Forecast (TAF) issued February 2014 for SAT.

2. FORECAST ASSUMPTIONS

In its June 2008 document entitled “Review and Approval of Aviation Forecasts”,¹ the FAA describes its guidelines for comparing locally-prepared forecasts to the FAA’s TAF. For all classes of airports, forecasts for total enplanements, based aircraft, and total operations are considered consistent with the TAF if they meet the following criterion:

Forecasts differ by less than 10 percent in the 5-year forecast period and 15 percent in the 10-year period.

For the SAT NEM Update, HMMH proposes to use the February 2014 issue of the FAA’s Terminal Area Forecast (Attachment A of this memorandum) for aircraft operational activity levels. The total proposed modeled operations are presented in Table 1. The TAF reports aircraft operational activity levels in one of four categories listed below.²

- Air Carrier – Operations by aircraft capable of holding 60 seats or more and are flying using a three letter company designator.
- Air Taxi - Operations by aircraft less than 60 seats and are flying using a three letter company designator or the prefix “Tango”.
- Military – all classes of military operations.

¹ http://www.faa.gov/airports/planning_capacity/media/approval_local_forecasts_2008.pdf

² FAA Joint Order JO 7210.3X, Section 9-1-2. Categories of Operations, Published 2/9/2012. Latest version is available at <http://www.faa.gov/documentLibrary/media/Order/FAC.pdf>. The 2012 TAF is based on historical operations data http://www.faa.gov/about/office_org/headquarters_offices/apl/aviation_forecasts/taf_reports/media/TAF_summary_report_FY2012.pdf, pp. 3-5.

HARRIS MILLER MILLER & HANSON INC.

Subject: SAT Part 150 Noise Exposure Map Update – Forecast Assumptions

Date: July 16, 2014

Page 2

- General Aviation – Civil (non-military) aircraft operations not otherwise classified under air carrier or air taxi.

For the 2014 NEM, 179,122 annual operations would be modeled. For the 2019 NEM, 202,402 annual operations would be modeled. Table 1 also presents, for reference, the 2013 actual airport operations, as reported by FAA's Air Traffic Activity Data System (ATADS).³

Baseline operations will be developed using Calendar year 2012 data (provided by SAAS via its Exelis EnvironmentalVue system and augmented with flight plan data purchased from a third-party vendor and data from US Department of Transportation) and scaled to TAF 2014 activity levels (refer to Table 1).⁴



³ FAA's Operations Network (OPSNET), <https://aspm.faa.gov/opsnet/sys/main.asp>

⁴ *Airscene.com* is a registered trademark of ITT Exelis. Flight plan data, purchased from a third party-vendor, would be used to provide the destination airports for departing aircraft, which is then used in an FAA approved methodology to estimate aircraft weight (*Airscene.com* does not provide the destination airport for SAT departures).

HARRIS MILLER MILLER & HANSON INC.

Subject: SAT Part 150 Noise Exposure Map Update – Forecast Assumptions
Date: July 16, 2014
Page 3

Table 1 – Summary of FAA Terminal Area Forecast (TAF) Operations Activity Levels at SAT and Proposed Modeled Operations for the 2014 and 2019 Noise Exposure Map

FAA Operational Category ¹	2013 Operations ²		Proposed 2014 NEM Operations		Proposed 2019 NEM Operations	
	2013 ATADS (Actual)	2013 Average Annual Day Operations	2014 Forecast – Issued February 2014	2014 Average Annual Day Operations	2019 Forecast – Issued February 2014	2019 Average Annual Day Operations
Air Carrier	93,904	257.3	97,302	266.6	117,356	321.5
Air Taxi and Commuter	23,895	65.5	22,163	60.7	23,656	64.8
GA (Itinerant + local) ³	53,967	147.9	53,938	147.8	55,671	152.5
Military (Itinerant + local) ³	5,331	14.6	5,719	15.7	5,719	15.7
Total⁴	177,097	485.2	179,122	490.8	202,402	554.5

Notes:

1 Operational Categories used in ATADS and the TAF are those defined in FAA Order 7210.3Y at Chapter 12, Section 12-1-5 (April 3, 2014). Latest version available at <http://www.faa.gov/documentLibrary/media/Order/FAC.pdf> Also available as FAA Notice N JO 7210.695 "Facility Statistical Data, Reports, and Forms" July 1, 2008 and available at [https://aspm.faa.gov/opsnet/JO_7210.695_%20Facility Statistical Data Reports and Forms.pdf](https://aspm.faa.gov/opsnet/JO_7210.695_%20Facility%20Statistical%20Data%20Reports%20and%20Forms.pdf)

2 2013 actual operations are provided for reference.

3 General Aviation and Military activity levels presented in "Itinerant" operations include "Local" operations. The TAF forecasts 0 local operations, civilian or military for both 2014 and 2019.

4 Totals may not match exactly due to rounding.

Sources: ATADS, TAF 2014

The detailed forecast for 2019 relies on several general assumptions concerning changes to the fleet within the SAT NEM Update time frame. These changes would be made relative to the 2014 fleet. We considered publicly available information from various airlines operating at SAT during calendar year 2013 as part of this effort – the fourteen airlines specifically reviewed represent approximately fifty-four percent of calendar year 2014 operations. The remaining forty-six percent of operations will be included in the modeling, although with broader assumptions.⁵

We propose that the assumptions for 2019 would be:

- Military operations are identical for 2014 and 2019 conditions. The TAF shows no change.
- All aircraft certified to 14 CFR Part 36 Stage 2 will be retired from the fleet by 2015, therefore they will remain in the 2014 fleet but be replaced by Stage 3 or higher versions for the 2019 fleet.⁶

⁵ The remaining operations include a mix of, fractional ownership aircraft, charters, general aviation operations and military operations. No single identified operator NOT researched has more than 1% of operations except that the Military (all branches) has 3% of operations and NetJets has 2% of operations.

⁶ 14 CFR Part 36 describes noise certification of aircraft. Stage 2 aircraft are louder than Stage 3 aircraft of the same weight. 14 CFR Part 36 also defines Stage 4 (quieter than Stage 3) and may in the future define Stage 5. 14 CFR Stage 2 aircraft will typically not be allowed to operate in continental United States after December 31, 2015 per the FAA Modernization and Reform Act of 2012. Currently, aircraft certified to 14 CFR Stage 2 and weighing more than 75,000 lb have generally been prohibited from operating in the continental United States since 2000. In practice, the 2012 act affects the remaining aircraft weighing less than 75,000 lb. FAA released a final rule, effective September 3, 2013, that adopts into operating rules the prohibitions

HARRIS MILLER MILLER & HANSON INC.

Subject: SAT Part 150 Noise Exposure Map Update – Forecast Assumptions

Date: July 16, 2014

Page 4

- The day/night ratio and departure stage length ratio for aircraft will remain the same as the 2013 base-year for each aircraft type combination.
- Southwest Airlines (SWA) and AirTran (TRS)⁷
 - These airlines will continue their merger and continue to operate in a similar manner as in 2013
 - Southwest will retire their 737-500s and thirty-nine percent of their 737-300⁸
 - Southwest's growth will come from the Boeing 737-700s and 737-800s that are on order.
 - Boeing 717-200s will be removed from the combined SWA/TRS fleet and will be transferred to Delta Air Lines (DAL). Boeing 717-200 operations will be replaced with 737-700 operations.
- Delta Air Lines (DAL)⁹ and Endeavor Air (FLG)
 - Delta will retire all Boeing DC-9s and replace those operations with Boeing 717-200s
 - Delta will retire all Boeing 757-200s
 - Delta's growth will come from the Boeing 737-800s, 737-900s and Airbus A321s that are on order
- United Airlines (UAL)¹⁰
 - United will retire all Boeing 757-200s
 - Growth, including replacement of 757-200 operations, will come from the Boeing 737-900s that are on order



from the 2012 act.

Federal Register, July 2, 2013, pp. 39576 – 39583

<http://www.gpo.gov/fdsys/pkg/FR-2013-07-02/pdf/2013-15843.pdf>

Federal Register, September 20, 2013, pg. 57790

<http://www.gpo.gov/fdsys/pkg/FR-2013-09-20/pdf/2013-22850.pdf>

⁷ Aviation Week "Southwest Uses 737 Retirements to Decrease MRO Costs." accessed 6/2/12;

http://www.aviationweek.com/Article/PrintArticle.aspx?id=article-xml/awx_05_17_2012_p0-458413.xml

(available only by subscription)

Boeing "Customer Reports– Southwest Airlines." accessed 9/5/13;

<http://active.boeing.com/commercial/orders/index.cfm?content=customersselection.cfm&pageid=m15524>

Air Transport World Online "Southwest to sublease all 88 AirTran 717s aircraft to Delta." accessed 9/10/13

<http://atwonline.com/aircraft-amp-engines/southwest-sublease-all-88-airtran-717s-aircraft-delta>

⁸ We have not found an exact retirement schedule for the 737-300 and 737-500. Southwest Airline's 2012 Annual Report indicates that the 737-300 and 737-500 are being retired (pp 10, 12, 53, 61, 88). However, Southwest expects to retrofit 78 of its 737-300s with *Evolve* interior in 2013 (pg. 10). As of December 31, 2012, SWA had 128 737-300 (pg. 35). Therefore, we assumed that 78 (61% of 128) 737-300s would still be in service as Southwest recoups its investment in the *Evolve* interior and the remaining 50 aircraft (39%) would be retired.

<http://southwest.investorroom.com>

⁹ Air Transport World Online "Southwest to sublease all 88 AirTran 717s aircraft to Delta." accessed 9/10/13;

<http://atwonline.com/aircraft-amp-engines/southwest-sublease-all-88-airtran-717s-aircraft-delta>

Delta Air Lines "Annual Report 10K SEC Filing 2013." accessed 5/13/13;

<http://www.sec.gov/edgar/searchedgar/companysearch.html>

Delta Air Lines "Delta Continues Domestic Fleet Restructuring..." accessed 9/10/13;

<http://news.delta.com/index.php?s=43&item=1809>

Delta Air Lines "Delta Announces Order for 40 Airbus Aircraft" accessed 9/11/2013;

<http://news.delta.com/index.php?s=43&item=2095>

Endeavor Air is wholly owned by Delta Air Lines and operates CRJ9

<http://www.mesaba.com/index.html> accessed 7/16/2014

<http://www.mesaba.com/aircraft.html> accessed 7/16/2014

¹⁰ United Airlines "Annual Report 10K SEC Filing 2013." accessed 5/14/13;

<http://www.sec.gov/edgar/searchedgar/companysearch.html>

United Airlines "United Announces Order For 150 Boeing Aircraft." accessed 9/10/13

<http://ir.unitedcontinentalholdings.com/phoenix.zhtml?c=83680&p=irol-newsArticle&ID=1714264>

HARRIS MILLER MILLER & HANSON INC.

Subject: SAT Part 150 Noise Exposure Map Update – Forecast Assumptions

Date: July 16, 2014

Page 5

- US Airways (AWE)¹¹
 - AWE and American Airlines (AAL) will continue their merger, and continue to operate in a similar manner as in 2012. Ultimately, the combined companies will retain the American Airlines brand name. These airlines have not announced comprehensive fleet changes in time for this analysis. Therefore for this analysis, their operations will be considered independently.
 - US Airways will retire all Boeing 737-400s
 - Growth will come from the Airbus A321 that are on order
- American Airlines (AAL)¹²
 - American will retire approximately sixty percent of their Boeing MD-80 aircraft by 2019;
 - Growth will come from the Boeing 737-800s that are on order
- American Eagle/Envoy (EGF)¹³
 - American Airlines, the major airline that oversees EGF service, will discontinue service with all Embraer 135/140/145s operated by American Eagle and replace them with Embraer 175s operated by Republic Airways (RPA) on order before 2019.
- SkyWest Airlines (SKW) and Expressjet (ASQ)¹⁴
 - SKW and ASQ will retire CRJ-200s in 2015
 - SKW and ASQ growth will come from Embraer 175s that are on order
- Mesa Airlines (ASH)¹⁵
 - ASH's growth will come from additional CRJ9s
- FedEx (FDX)¹⁶
 - DC-10/MD-11/MD-10 aircraft will be replaced with Boeing 767-300 aircraft by 2019
- Compass Airlines (CPZ) and GoJet (GJS)¹⁷
 - CPZ's and GJS's growth will come from Embraer 175s that are on order



¹¹ Bloomberg, "AMR, US Airways Affirm Plane Orders in Push to Refresh Fleet," accessed 9/10/13/13;; <http://www.bloomberg.com/news/2013-02-14/amr-us-airways-affirm-plane-orders-in-push-to-refresh-fleets.html>
Boeing "Customer Reports – US Airways," accessed 9/5/13;
<http://active.boeing.com/commercial/orders/index.cfm?content=customerselection.cfm&pageid=m15524> US Airways "Annual Report 10K SEC Filing 2013," accessed 5/15/13 <http://www.sec.gov/edgar/searchedgar/companysearch.html>
American Airlines "AMR Corporation And US Airways Group Come Together To Build The New American Airlines" accessed 4/24/2014
<http://hub.aa.com/en/nr/amr-corporation-and-us-airways-group-come-together-to-build-the-new-american-airlines>

¹² DallasNews "American execs see massive aircraft order as a no-lose proposition," accessed 9/10/13
<http://www.dallasnews.com/business/airline-industry/20110720-american-airlines-confirms-deal-to-buy-460-aircraft-spin-off-american-eagle.ece>

¹³ American Eagle Airlines, Inc. To Change Its Name To Envoy accessed 3/24/2014
<http://hub.aa.com/en/nr/pressrelease/american-eagle-airlines-inc-to-change-its-name-to-envoy>
ch aviation GmbH "American Eagle to retire remaining ERJ-135s by end of 2013," accessed 9/10/13
<http://www.ch-aviation.ch/portal/news/14133-american-eagle-to-retire-remaining-erj-135s-by-end-of-2013>
American Airlines "Large 76 Seat Regional Jets Will Join the American Fleet for the First Time in its History" accessed 9/10/13
<http://hub.aa.com/en/nr/pressrelease/american-airlines-signs-new-agreement-to-begin-large-regional-jet-flying>

¹⁴ "SKYWEST, INC. ANNOUNCES FOURTH QUARTER AND FULL-YEAR 2013 RESULTS", sections "Business Developments" and "About" access 7/16/2014
<http://inc.skywest.com/invest/releases.php>

¹⁵ <http://www.mesa-air.com/USAirways.asp> Accessed 7/16/2014
Although Mesa is also taking upcoming deliver of Embraer 175s, those will be operated on behalf of United, while Mesa's operations at SAT are on behalf of US Airways flying to/from Phoenix, AZ.

¹⁶ FedEx Annual Report 2013. pp. 22, 25 Accessed 4/4/2014
<http://investors.fedex.com/phoenix.zhtml?c=73289&p=irol-reportsannual>

¹⁷ "Embraer and Trans States Sign Deal for up to 100 E175-E2s" July 14, 2014
<http://www.compassairline.com/html/media.htm> Accessed 7/16/2014

HARRIS MILLER MILLER & HANSON INC.

Subject: SAT Part 150 Noise Exposure Map Update – Forecast Assumptions
Date: July 16, 2014
Page 6

- UPS (UPS)¹⁸
 - No changes are expected for this airline
- For the operations not described by the airlines or operators (including general aviation) discussed specifically above:¹⁹
 - Unless noted specifically above for a given airline, out of production aircraft will be held at current levels. However, if a majority of the airframes for the type were produced more the 25 years ago, that airframe will be retired.
 - Growth will come from in-production aircraft types (in other words, aircraft that are currently being manufactured) in the same proportion that they appear in the baseline data set, unless noted specifically above for a given airline.

3. IMPLEMENTATION



Reviewing the above research, we recommend that the following steps, in order are done.

3.1 Replacements – by Airline

The following FAA Category, AIRLINE, 2014 INMCODE should change to represent 2019

FAA Category	AIRLINE	2014 INMCODE	Change to:	Notes:
AT	ASQ	CL601	EMB175	
AT	EGF	EMB14L	EMB175	
AT	EGF	EMB145	EMB175	
AT	SKW	CL601	EMB175	
AC	FDX	DC1010	767300	
AC	FDX	MD11GE	767300	
AC	FDX	DC1030	767300	
AC	FDX	MD11PW	767300	

¹⁸ UPS Annual Report 2013, pp. 19, 20 Accessed 7/16/2014
<http://www.investors.ups.com/phoenix.zhtml?c=62900&p=irol-kit>

¹⁹ See Footnote 5 for additional discussion.

HARRIS MILLER MILLER & HANSON INC.

Subject: SAT Part 150 Noise Exposure Map Update – Forecast Assumptions
Date: July 16, 2014
Page 7

3.2 Replacements – by Type

The following FAA Category, 2014 INMCODE should change to represent 2019. Most of these changes are associated with the 14 CFR Stage 2 phaseout discussed previously.

FAA Category	2014 INMCODE	Change To:	Notes
AT	FAL20	LEAR35	LEAR35 represent the possible reengined version of the FAL20
AT	GIIB	GIV	
AT	LEAR25	LEAR35	
GA	FAL20	LEAR35	LEAR35 represent the possible reengined version of the FAL20
GA	GII	GIV	
GA	GIIB	GIV	
GA	LEAR25	LEAR35	

3.3 Reductions

The following CAT_TOWER, AIRLINE, 2014 INMCODE should change to represent 2019.

CAT_TOWER	AIRLINE	2014 INMCODE	Reduce
AC	SWA	737300	61% of annual ops

HARRIS MILLER MILLER & HANSON INC.

Subject: SAT Part 150 Noise Exposure Map Update – Forecast Assumptions
Date: July 16, 2014
Page 8

3.4 Aircraft identified for growth, holds and retirements

The following are the growth, hold, and retirement dispositions by category and INM type. These are intended to apply AFTER the above are done and before final scaling to the TAF. In some cases, the above may completely remove ops for the table below. Note that military operations are not shown as it was previously assumed that they would be static between 2014 and 2019.

CAT_TOWER	INM CODE	2014_OPS	% of 2014 ops total	Recommendation	Notes
AC	717200	1736	1%	Retire	
AC	727EM2	45	0%	retire	
AC	737300	9726	5%	Reduce	As noted above.
AC	7373B2	453	0%	retire	
AC	737400	1595	1%	retire	
AC	737500	4628	3%	Retire	
AC	737700	25156	14%	grow	
AC	737800	4192	2%	grow	
AC	737N17	7	0%	retire	
AC	737N9	2	0%	retire	
AC	747400	5	0%	hold	
AC	757300	31	0%	retire	
AC	757PW	4268	2%	Retire	
AC	757RR	608	0%	Hold	
AC	767300	5	0%	Grow	Continue growth after moving FedEx ops
AC	767400	2	0%	Hold	
AC	777200	2	0%	Hold	
AC	A300-622R	1877	1%	Hold	
AC	A310-304	856	0%	Hold	

HARRIS MILLER MILLER & HANSON INC.

Subject: SAT Part 150 Noise Exposure Map Update – Forecast Assumptions

Date: July 16, 2014

Page 9



AC	A319-131	3846	2%	grow	
AC	A320-211	145	0%	Hold	
AC	A320-232	825	0%	Hold	
AC	A321-232	2	0%	grow	
AC	CRJ9-ER	16434	9%	Hold	Although the discussion above has ASH growth coming from CRJ9-ER, ASH represents less than 25% of this type.
AC	CRJ9-LR	2682	1%	Hold	
AC	DC1010	842	0%	retire	
AC	DC1030	289	0%	retire	
AC	DHC830	465	0%	hold	
AC	EMB170	541	0%	hold	
AC	EMB175	1636	1%	Grow	Grow, including the replacements above
AC	EMB190	286	0%	Hold	
AC	F10062	5	0%	grow	
AC	MD11GE	377	0%	hold	
AC	MD11PW	255	0%	hold	
AC	MD81	24	0%	hold	
AC	MD82	7609	4%	Retire	These are almost all AAL's and will leave AAL's total MD80 family about 40% of 2014 conditions
AC	MD83	4936	3%	Hold	
AC	MD9025	529	0%	Hold	

HARRIS MILLER MILLER & HANSON INC.

Subject: SAT Part 150 Noise Exposure Map Update – Forecast Assumptions

Date: July 16, 2014

Page 10



AC	MD9028	379	0%	Hold	
AT	1900D	929	1%	hold	
AT	BEC58P	675	0%	HOLD	
AT	CIT3	52	0%	hold	
AT	CL600	539	0%	grow	
AT	CL601	3451	2%	Hold	Holding this mostly represents the CRJ2, which is out of production
AT	CNA172	73	0%	Grow	
AT	CNA182	63	0%	Grow	
AT	CNA206	257	0%	Hold	
AT	CNA208	2147	1%	grow	
AT	CNA20T	21	0%	Grow	
AT	CNA441	1280	1%	retire	
AT	CNA500	501	0%	retire	
AT	CNA510	115	0%	hold	
AT	CNA525C	275	0%	grow	
AT	CNA55B	602	0%	grow	
AT	CNA560E	289	0%	grow	
AT	CNA560U	49	0%	hold	
AT	CNA560XL	1343	1%	grow	
AT	CNA680	518	0%	hold	
AT	CNA750	842	0%	grow	
AT	CVR580	10	0%	retire	
AT	DHC6	122	0%	retire	
AT	DHC8	3	0%	hold	

HARRIS MILLER MILLER & HANSON INC.

Subject: SAT Part 150 Noise Exposure Map Update – Forecast Assumptions

Date: July 16, 2014

Page 11



AT	DHC830	331	0%	hold	
AT	DO228	111	0%	hold	
AT	ECLIPSE500	7	0%	hold	
AT	EMB120	136	0%	Hold	
AT	EMB145	964	1%	hold	
AT	EMB14L	3131	2%	Hold	
AT	F10062	3	0%	grow	
AT	FAL20	3	0%	retire	Stage 2 – replace and then hold
AT	GASEPV	595	0%	HOLD	
AT	GIIB	10	0%	retire	Stage 2 – replace and then hold
AT	GIV	226	0%	grow	
AT	GV	31	0%	grow	
AT	HS748A	14	0%	hold	
AT	IA1125	87	0%	hold	
AT	LEAR25	160	0%	retire	Stage 2 – replace and then hold
AT	LEAR35	1440	1%	hold	
AT	MU3001	317	0%	hold	
AT	PA28	24	0%	retire	
AT	PA31	35	0%	retire	
AT	PA42	21	0%	retire	
AT	SD330	358	0%	grow	
GA	1900D	186	0%	hold	
GA	A109	4	0%	hold	Helo
GA	B206B3	102	0%	hold	Helo

HARRIS MILLER MILLER & HANSON INC.

Subject: SAT Part 150 Noise Exposure Map Update – Forecast Assumptions

Date: July 16, 2014

Page 12



GA	B206L	44	0%	hold	Helo
GA	B407	95	0%	hold	Helo
GA	B430	15	0%	hold	Helo
GA	BEC58P	1909	1%	HOLD	
GA	CIT3	536	0%	hold	
GA	CL600	1763	1%	grow	
GA	CL601	2412	1%	grow	
GA	CNA172	878	0%	Grow	
GA	CNA182	1089	1%	Grow	
GA	CNA206	1844	1%	Hold	
GA	CNA208	3589	2%	grow	
GA	CNA20T	696	0%	Grow	
GA	CNA441	4303	2%	retire	
GA	CNA500	729	0%	retire	
GA	CNA510	2714	2%	grow	
GA	CNA525C	3527	2%	grow	
GA	CNA55B	1166	1%	grow	
GA	CNA560E	707	0%	grow	
GA	CNA560U	864	0%	hold	
GA	CNA560XL	2437	1%	grow	
GA	CNA680	710	0%	hold	
GA	CNA750	1341	1%	grow	
GA	CVR580	4	0%	retire	
GA	DC3	44	0%	retire	
GA	DHC6	80	0%	retire	
GA	DHC7	11	0%	retire	

HARRIS MILLER MILLER & HANSON INC.

Subject: SAT Part 150 Noise Exposure Map Update – Forecast Assumptions
Date: July 16, 2014
Page 13



GA	DHC8	7	0%	hold	
GA	DHC830	659	0%	hold	
GA	DO228	1625	1%	hold	
GA	DO328	11	0%	grow	
GA	EC130	277	0%	hold	Helo
GA	ECLIPSE500	390	0%	hold	
GA	EMB120	109	0%	hold	
GA	EMB145	889	0%	hold	
GA	EMB14L	390	0%	hold	
GA	F10062	1312	1%	grow	
GA	FAL20	11	0%	retire	Stage 2 – replace and then hold
GA	GASEPF	576	0%	Grow	
GA	GASEPV	4609	3%	HOLD	
GA	GII	120	0%	retire	Stage 2 – replace and then hold
GA	GIIB	62	0%	retire	Stage 2 – replace and then hold
GA	GIV	1374	1%	grow	
GA	GV	481	0%	grow	
GA	H500D	4	0%	hold	
GA	HS748A	186	0%	hold	
GA	IA1125	412	0%	hold	
GA	LEAR25	22	0%	retire	Stage 2 – replace and then hold
GA	LEAR35	4988	3%	Hold	
GA	MU3001	907	1%	hold	
GA	PA28	91	0%	retire	

HARRIS MILLER MILLER & HANSON INC.

Subject: SAT Part 150 Noise Exposure Map Update – Forecast Assumptions

Date: July 16, 2014

Page 14

GA	PA30	22	0%	retire	
GA	PA31	189	0%	retire	
GA	PA42	91	0%	retire	
GA	R22	55	0%	Grow	Helo
GA	R44	33	0%	Grow	Helo
GA	S76	15	0%	hold	Helo
GA	SA341G	7	0%	hold	Helo
GA	SA355F	106	0%	hold	Helo
GA	SD330	102	0%	grow	
GA	SF340	11	0%	grow	



Appendix F Non-Standard Modeling Substitution Request Letter



John MacFarlane
Environmental Protection Specialist
Federal Aviation Administration - Southwest Regional Office
Texas Airports Development Office
2601 Meacham Boulevard
Fort Worth, TX 76137-4298

Subject: Request for Approval of Integrated Noise Model Non-Standard Aircraft Substitutions in
Support of the Noise Exposure Map Update at San Antonio International Airport

Dear Mr. MacFarlane:

San Antonio Airport System (SAAS) requests the Federal Aviation Administration's (FAA) approval of non-standard aircraft substitutions in the FAA Integrated Noise Model (INM) for updating the San Antonio International Airport (SAT) Noise Exposure Map (NEM).

Based on Aircraft fleet data derived from the SAT noise and operations monitoring system (NOMS), SAAS has identified a list of aircraft types that operate at SAT, but are not included in the INM Version 7.0d database. For each of these aircraft types a recommended INM substitution has been identified to use in the NEM update modeling process. Consistent with FAA policies and procedures, we are submitting the attached listing with recommended aircraft types for review and approval by FAA, particularly the Office of Environment and Energy (AEE).

SAAS requests that the FAA approve the use of these "non-standard" aircraft substitutions in INM 7.0d for the SAT NEM Update. If you have any specific comments or questions related to this request, please feel free to contact Rhea Gundry of Harris Miller Miller & Hanson Inc. (HMMH) at (916) 368-0707, ext 2235 or me at (210) 207-3402.

Thank you for your assistance on this matter.

Sincerely yours,

Steven K. Southers
Environmental Stewardship Manager

Attachment:

INM Aircraft Substitution Request

CITY OF SAN ANTONIO AVIATION DEPARTMENT
9800 Airport Blvd. San Antonio, TX 78216 | Phone 210.207.SAIA (7242) | Fax 210.207.3500

Our Mission:

To innovatively manage our airports to provide a positive customer experience while supporting economic development.

HARRIS MILLER MILLER & HANSON INC.

8880 Cal Center Dr., Suite 430
Sacramento, CA 95826
T 916.368.0707
F 916.368.1201
W www.hmmh.com

June 19, 2014

Mr. Steven K. Southers
Environmental Stewardship Manager
San Antonio Airport System

Subject: San Antonio International Airport
SAT Part 150 Noise Exposure Map Update – INM Substitution Aircraft Request
Reference: HMMH Project No. 306640.001

Dear Mr. Southers:



Harris Miller Miller & Hanson Inc. (HMMH) is assisting the City of San Antonio in the preparation of a Noise Exposure Map (NEM) Update for the San Antonio International Airport (SAT). The study will address aircraft noise and land-use compatibility projections based on Day-Night Average Sound Level contours developed using the most current release of the Integrated Noise Model (INM); i.e., Version 7.0d. Consistent with Federal Aviation Administration (FAA) policies and procedures, we submit this request for approval of the identified aircraft types of interest, included in Attachment A.

HMMH recommends that the city submit this request to FAA. FAA should review and approve these INM 7.0d substitutes for use in this NEM Update, or provide appropriate guidance. In accordance with FAA policy, we expect that this request will be reviewed by the FAA's Airport Planning and Environmental Division (APP-400) and Office of Environment and Energy Noise Division (AEE-100). We will be happy to respond to questions regarding this request from yourself or FAA.

Thank you for your assistance in this matter.

Sincerely yours,

HARRIS MILLER MILLER & HANSON INC.

A handwritten signature in black ink that reads 'Eugene M. Reindel'.

Eugene Reindel
Vice President

Attachment A: INM Aircraft Substitution Requests and Suggestions

HARRIS MILLER MILLER & HANSON INC.

Noise Exposure Map Update for San Antonio International Airport
Request for INM 7.0d Aircraft Type Substitutions
June 19, 2014
Page A-1

ATTACHMENT A

INM AIRCRAFT SUBSTITUTION REQUESTS AND SUGGESTIONS

The aircraft types listed in Table 1 are included in the Noise Exposure Map (NEM) Update and require a FAA approved substitution. In each case, we have identified a substitute for each aircraft using the INM 7.0d database. The basis for our recommendations is discussed following Table 1.

This discussion refers, in some cases, to recent guidance FAA provided HMMH for noise studies including:

- Portsmouth International Airport at Pease (PSM) Part 150 Noise Exposure Map Update with INM 7.0d, HMMH Project No. 305310, FAA approval issued January 28, 2014.
- Fort Lauderdale Executive (FXE) Part 150 Noise Exposure Map Update with INM 7.0d, HMMH Project No. 304500, FAA approval issued June 3, 2014.

We can provide copies of the above documents upon request.

Table 1. Aircraft Types and Recommended INM Substitutions

#	Group	Aircraft Code	Represented Aircraft Models	Recommended INM Substitution
1.1	Jet	H25C	BAe/Raytheon Hawker 1000	LEAR35 ¹
1.2	Jet	LJ40	Learjet 40	LEAR35 ¹
1.3	Turbo Prop	B350	Beech Super King Air 350	DO228 ²
1.4	Turbo Prop	P46T	Piper Malibu Meridian	CNA208 ²
1.5	Turbo Prop	TBM8	Socata TBM-850	CNA208 ²
1.6	Piston Prop	BE36	Beechcraft 36 Bonanza	CNA206 ²
Notes: 1 FAA approved type for PSM Part 150 NEM 2 FAA approved type for FXE Part 150 NEM				

1.1 BAe/Raytheon Hawker-125-1000 – H25C

We propose to model H25C operations with INM type LEAR35 as most recently approved for the PSM NEM, HMMH Job # 305310.

Table 2 compares the Hawker 125-1000 with the Hawker 800 and LEAR35 aircraft. Based on the comparison, the LEAR35 appears to be a good match.

HARRIS MILLER MILLER & HANSON INC.

Noise Exposure Map Update for San Antonio International Airport
Request for INM 7.0d Aircraft Type Substitutions
June 19, 2014
Page A-2

Table 2 Noise Certification Data from BAe-125-1000 and -800 and LEAR35

Manufacturer	Type Designation	MTOW (lb)	MLW (lb)	Engine Manufacturer / Type Designator	Noise Level (EPNdB)		
					Takeoff	Sideline	Approach
Raytheon	Hawker 125-1000	31,000	25,000	PW305	81.8	85.9	91.6
Raytheon	Hawker 125-800	27,400	23,350	TFE731-5R-1H	80.9	87.2	96.5
Learjet	LEAR 35 A	18,000	14,300	TFE731-2-2B	83.6	87.4	91.3

Source: FAA AC 36-1H, at
http://www.faa.gov/about/office_org/headquarters_offices/AEP/noise_levels/media/uscrt_appendix_01_030210.xls

1.2 Learjet 40 – LJ40

We propose to model LJ40 operations with INM type LEAR35 as most recently approved for the PSM NEM, HMMH Job # 305310.

The LJ40 is a derivative of the Learjet 45 (LJ45) with a shorter fuselage. The LJ40 and LJ45 engines are both versions of the Honeywell TFE731-20AR. In INM 7.0d, the LJ45 is mapped to the substitution aircraft, LEAR35.

1.3 Beech Super King Air 350 – B350

We propose to model the B350 operations with INM type DO228 as most recently recommended/approved for the FXE NEM, HMMH Job # 304500.

1.4 Piper Malibu Meridian – P46T

We propose to model the P46T operations with INM type CNA208 as most recently recommended/approved for the FXE NEM, HMMH Job # 304500.

1.5 Socata TBM-850 – TBM8

We propose to model the TBM8 operations with INM type CNA208 as most recently recommended/approved for the FXE NEM, HMMH Job # 304500.

1.6 Beechcraft Bonanza 36 - BE36

We propose to model BE36 operations with INM type CNA206 as most recently approved for the FXE NEM, HMMH Job # 304500.

The BE36 Beechcraft Bonanza is a single-engine propeller aircraft that is similar in weight and engines with the Cessna 206 as shown in Table 3.

HARRIS MILLER MILLER & HANSON INC.

Noise Exposure Map Update for San Antonio International Airport
Request for INM 7.0d Aircraft Type Substitutions
June 19, 2014

Page A-3

Table 3 Estimated Maximum A-weighted Sound Levels for Cessna 206, Beechcraft 36

Manufacturer	Type Designation	MTOW (lb)	MLW (lb)	Engine Manufacturer / Type Designator	Noise Level (Est Lmax dB)	
					Takeoff	Approach
Cessna	206	3,300	3,300	IO-520-A	70.2	63.5
Beech	A36	3,600	3,600	IO-520-BA	71.0	64.0

Source: FAA AC 36-3H, as posted on
http://www.faa.gov/regulations_policies/advisory_circulars/index.cfm/go/document/information/documentID/22945, as viewed May 30, 2013

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Appendix G FAA Approval of Non-Standard Modeling Substitutions



U.S. Department
of Transportation
**Federal Aviation
Administration**

Office of Environment and Energy

800 Independence Ave., S.W.
Washington, D.C. 20591

Date: July 22, 2014

John MacFarlane
Environmental Protection Specialist
Southwest Region Regional Office
Texas Airports Development Office
Federal Aviation Administration

Dear Mr. MacFarlane:

The Office of Environment and Energy (AEE) has received the letter dated July 9, 2014 requesting for approval of Integrated Noise Model (INM) non-standard aircraft substitution in support of the Noise Exposure Map (NEM) update at the San Antonio International Airport (SAT).

AEE reviewed the proposed substitutions for the aircraft models that do not have standard substitutions in the INM. AEE approves the use of the proposed aircraft models – see the table below.

Aircraft type	Aircraft code	Aircraft models	Proposed INM models	AEE Response
Jet	H25C	Bae/Raytheon Hawker 1000	Lear35	Concur
Jet	LJ40	Learjet 40	Lear35	Concur
Turbo Prop	B350	Beech Super King Air 350	DO228	Concur
Turbo Prop	P46T	Piper Malibu Meridian	CAN208	Concur
Turbo Prop	TBM8	Socata TBM-850	CAN208	Concur
Piston Prop	BE36	Beechcraft 36 Bonanza	CAN206	Concur

Please understand that this approval is limited to the noise study for SAT. Any additional projects or non-standard aircraft input at SAT will require separate approval.

Sincerely,

P.P. 

Rebecca Cointin, Manager
AEE/Noise Division

cc: Jim Byers, APP-400

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Appendix H Use of RealContours™ in FAA-Funded Projects

The following sections provide background information on the methodology HMMH used to prepare Day-Night Average Sound Level (DNL) contours for the SAT NEM Update. The following areas are presented: (1) 14 CFR Part 150 requirements, (2) the methodology, (3) the documentation approach, and (4) a discussion of past FAA-funded and reviewed projects that have used the same methodology.

In summary, HMMH believes that the methodology described in this memorandum, including the use of RealContours™, conforms to FAA requirements and is not unique to prior FAA accepted analyses.¹⁰

H.1 14 CFR Part 150 Requirements

14 CFR Part 150, Airport Noise Compatibility Planning, provides specific requirements for noise prediction modeling. In particular, Section A150.103 of the regulation spells out key factors for FAA approval of computer modeling methodology, which include “the demonstrated capability to produce the required output and the public availability of the program or methodology to provide interested parties the opportunity to substantiate the results”. Furthermore, FAA has developed a checklist for FAA regional staff to use in reviewing Noise Exposure Map submissions and interpreting the requirements of 14 CFR Part 150.¹¹

In short, 14 CFR Part 150 requires that noise modeling methodology be documented to the extent that an interested party could *substantiate* the results provided in the Noise Exposure Map based on data provided in that submission. The rest of this appendix describes how we believe our proposed methodology is consistent with both the spirit and letter of the regulation, and how we propose to document our methodology to satisfy the checklist.

H.2 Proposed Noise Modeling Methodology

The following data sources were used to prepare the DNL contours:

- Existing Year Operations: Historical data on operations were used to model average daily fleet mix for the base case derived from SAT’s Noise and Operations Monitoring System (NOMS). The FAA Terminal Area Forecast (TAF) for year 2014 was used to derive the flight operations levels.
- Forecast Year Operations: The FAA TAF was used to derive the forecast (2019) flight operations. The forecast fleet mix made adjustments to the NOMS data to account for projected aircraft type retirements.
- Runway Use: Annual runway use statistics for the base year used data from SAT’s NOMS system.
- Flight Tracks: Data from SAT’s NOMS system was used to develop INM flight tracks.

The FAA Integrated Noise Model (INM) Version 7.0d was used for all noise computations. This is FAA’s preferred noise model; there were no proposed changes to the noise and performance database or any of the acoustic or other algorithms in the standard INM. Any required non-standard aircraft or non-

¹⁰ RealContours is a trademark of Harris Miller Miller & Hanson Inc. Additional description of the RealContours™ program is provided in this appendix.

¹¹ PART 150 NEM CHECKLIST – PART I available at

http://www.faa.gov/airports/environmental/airport_noise/part_150/checklists/media/noise_map_cklist_parti.pdf

standard aircraft substitutions were submitted to FAA for review and approval by the Office of Environment and Energy (AEE-100), as for any other NEM update and is independent of the use of RealContours™.

Most consulting firms that are active in conducting INM-based studies have developed input “pre-processors” to increase the efficiency of preparing operation and/or flight track inputs in the appropriate format. HMMH has developed a pre-processor named “RealContours™” that takes maximum possible advantage of both the INM’s capabilities and the investment that the SAAS has made in operations monitoring (with FAA funding support). RealContours converts radar flight tracks to INM tracks, thereby enabling the modeling of each and every radar flight for the year as an INM flight track.

In addition, RealContours compares each flight’s city-pair great-circle distance to the stage-lengths available in the default INM database and makes an appropriate selection.¹² In cases where the stage length is not available or exceeded the maximum stage-length profile available for that runway (i.e., the aircraft would not over run the runway on departure), the maximum stage length available without overrunning the runway is selected. If a particular INM aircraft has multiple available default profiles in INM for a given stage-length, RealContours compares the flight track’s altitude profile to the available default INM profiles, and assigns a default INM profile based on the closest match.¹³ RealContours does not build new aircraft performance profiles.¹⁴

This approach essentially eliminates the approximation associated with the use of a limited set of prototypical modeling tracks by applying the INM’s modeling capabilities on a flight-by-flight basis. Again, this preprocessor uses the INM without adjustment of any kind.

H.3 Proposed Documentation

As discussed above, Section A150.103 of Part 150 requires that the noise modeling methodology be documented such that the results could be substantiated by interested parties. The following information is provided as part of our NEM submission in Section 4:

- **Existing Conditions (2014) Operations:** Tables summarizing average annual operations (day and night) for all INM aircraft types used in the computation of base year contours.
- **Forecast Conditions (2019) Operations:** Tables summarizing average annual operations (day and night) for all INM aircraft types used in the computation of forecast year contours.
- **Runway Use:** Tables summarizing annual runway use by aircraft category (air carrier, air taxi, general aviation and military or other groupings as applicable) for both existing and forecast conditions.

¹² The stage-length lookup table is defined in Section 9.6.3 of the INM 7.0 User’s Guide.

¹³ This process is INM aircraft type specific. The term “default INM profiles” refers to a profile that is included in the INM database. INM can include multiple default profiles for commercial aircraft including “STANDARD”, “ICAO A” or “ICAO B”. Additional discussion regarding the different default profiles is provided in the INM 7.0 Technical Manual, Section 6. Some general aviation aircraft in INM may also include multiple profiles. Aircraft specific documentation is included in the respective INM release notes at the time of introduction of that aircraft or modification of the default profiles between versions of the INM.

¹⁴ RealContours can use user-defined profiles. However, such profiles would be built outside, and independently, of RealContours and would only be used if approved for the project by FAA in accordance with the “FAA Profile Review Checklist” provided in the INM 7.0 User’s Guide, Appendix B.

- **Flight Tracks:** Graphic depictions of the model tracks, separately for arrivals and departures. Samples of the actual flight tracks modeled in addition to flight track density plots that represent all modeled flight tracks.¹⁵ In addition, a CD-ROM containing all INM input data upon finalization of the contours will be provided.

This level of documentation would provide an interested party sufficient data to substantiate the results that are presented in the NEM.

H.4 Projects that have used a Similar Methodology

The methodology used for the SAT NEM, including the use of RealContours, has been used for a variety of other FAA-funded and reviewed projects provided in the following chronological list of overviews and notes. The documentation of each of these projects includes a discussion of RealContours.

H.4.1 Maryland Aviation Administration, Baltimore/Washington International Thurgood Marshall Airport Part 150 Updated Noise Exposure Maps, December 2005

The FAA found the 2003 and 2010 NEMs in compliance with Part 150 requirements on April 3, 2006.

During the NEM process (fall through December 2003), HMMH coordinated with FAA Washington Airport District Office and Community and Environmental Needs Division (APP-600). During the course of discussion, APP-600 concurred with the use of RealContours. APP-600 also indicated that they coordinated with AEE-100 and that AEE-100 concurred with the use of RealContours as long as we did not modify the INM standard inputs.

The NEM included non-standard aircraft and aircraft substitutions (independent of the use of RealContours) and they were documented and approved by AEE-100 as they would for any other NEM at the time

H.4.2 San Diego County Regional Airport Authority, San Diego International Airport, Part 150 Update Noise Exposure Maps, August 2009

The FAA found the NEM in compliance with Part 150 requirements on November 10, 2009.¹⁶

This NEM included non-standard aircraft and aircraft substitutions (independent of the use of RealContours) and they were documented and approved by AEE-100 as they would for any other NEM at the time.

The inputs for the NEM were later used for analysis and development for the associated Noise Compatibility Program.

H.4.3 Rhode Island Airport Corporation, T.F. Green Airport Part 150 Update Noise Exposure Maps, July 2010

The FAA found the NEM in compliance with Part 150 requirements on July 27, 2010.¹⁷

¹⁵ This is consistent with the presentation in the Louisville International Airport NEM update, which was the last NEM update to use RealContours. See Section 1.1.1.1H.4.4 for additional discussion.

¹⁶ Federal Register Volume 74, Number 239 (Tuesday, December 15, 2009)

<http://www.gpo.gov/fdsys/pkg/FR-2009-12-15/html/E9-29760.htm>

¹⁷ Federal Register Volume 75, Number 152 (Monday, August 9, 2010)

<http://www.gpo.gov/fdsys/pkg/FR-2010-08-09/html/2010-19611.htm>

This NEM included non-standard aircraft and aircraft substitutions (independent of the use of RealContours) and they were documented and approved by AEE-100 as they would for any other NEM at the time.

H.4.4 Louisville Regional Airport Authority, Noise Exposure Map Update Louisville International Airport, March 2011

The FAA found the NEM in compliance with Part 150 requirements on April 7, 2011.¹⁸

This NEM used non-standard aircraft substitution and aircraft performance profiles, but the development of those non-standard inputs was done independent of the use of RealContours. The non-standard performance profiles included profiles, for particular aircraft types, developed by the manufacturer, customized to Louisville operations. The analysis also included revised weight estimates for certain cargo aircraft based on information specific to Louisville published by the US Department of Transportation. The NEM, and its associated appendices, document the non-standard input assumptions along with FAA's review and approval.

H.4.5 Final Environmental Impact Statement and Final Section 4(f) Evaluation T.F. Green Airport Improvement Program, July 2011

FAA issued a Record of Decision on September 23, 2011.¹⁹

The Final Environmental Impact Statement (FEIS) references the associated Draft Environmental Impact Statement (DEIS) for descriptions of the methodology used to conduct the noise evaluation for the FEIS. During March 2010 and later May 2011, there were several discussions regarding the use of RealContours with the FAA's Office of Airport Planning and Programming (APP-400) and AEE-100. The discussion concluded with a May 30, 2011 email from P. Magnotta (APP-400) that he and J. Plante concurred that an approval memorandum was not required from AEE.

¹⁸ Federal Register Volume 76, Number 73 (Friday, April 15, 2011)
<http://www.gpo.gov/fdsys/pkg/FR-2011-04-15/html/2011-9224.htm>

¹⁹ Federal Register Volume 76, Number 191 (Monday, October 3, 2011)
<http://www.gpo.gov/fdsys/pkg/FR-2011-10-03/html/2011-25414.htm>

Appendix I Public Participation

I.1 Stakeholder Letter



San Antonio International Airport
City of San Antonio
Aviation Department

Date

<Title> <First Name> <Surname>
<Position>
<Organization>
<Address>
San Antonio, TX <zip code>

Dear <Title> <Surname>,

This letter is to inform you of a study the San Antonio Airport System (SAAS) is conducting in accordance with Title 14 of the Code of Federal Regulations Part 150 (14 CFR Part 150). This study will determine the current aircraft noise exposure environment and update the Noise Exposure Map (NEM) for the San Antonio International Airport. The study examines the existing and the five-year forecast of the airport's operations as well as the current status of the Noise Compatibility Program in order to update the NEM to current and future anticipated conditions.

The Federal Aviation Administration (FAA) requires airports to update the map at least every five years in order to continue receiving federal funds for noise mitigation measures, such as the Residential Acoustical Treatment Program (RATP). The last NEM update was completed in 2009. The current study began in May 2014 and is scheduled to be essentially complete [with the NEM submitted to the FAA for acceptance] in November 2014. A public meeting/hearing is being held at the Airport Holiday Inn (77 N.E. Loop 410) beginning at 6:00 pm with a brief presentation at 6:30 pm on October 21, 2014. It will provide stakeholders and the general public an opportunity to review the results of the study and provide comments before the document is submitted to the FAA for review and acceptance.

We appreciate your interest in the San Antonio International Airport and look forward to discussing the NEM update with you at the meeting.

Sincerely yours,

Frank R. Miller
Aviation Director

I.2 Newsletter/Announcement/Flyer/Public Notice/Display Ads

NOTICE OF PUBLIC MEETING/HEARING ON TITLE 14 CODE OF FEDERAL REGULATIONS PART 150 AIRPORT NOISE EXPOSURE MAP UPDATE FOR SAN ANTONIO INTERNATIONAL AIRPORT SAN ANTONIO, TEXAS

To ensure full opportunity for public comment, the San Antonio Airport System (SAAS) will hold a Public Meeting on Tuesday, October 21, 2014 to present the results of the Noise Exposure Map (NEM) update for the San Antonio International Airport. The NEM study examines the existing and the five-year forecast of the airport's operations as well as the current status of the Noise Compatibility Program in order to update the NEM to current and future anticipated conditions. The NEM is used, among other things, to determine the areas around the Airport that are potentially eligible for noise mitigation, such as the Residential Acoustic Treatment Program (RATP) currently administered by SAAS. In addition, SAAS is amending two noise mitigation measures within their Noise Compatibility Program (NCP).

To present the NEM update and receive comments, SAAS will conduct a public meeting in the Prairie Mesa Room of the Holiday Inn Airport, 77 NE Loop 410, 78216. The meeting will begin with an open house at 6:00 p.m. and a presentation at 6:30 p.m. A stenographer will be available to hear and record oral comments immediately following the presentation of the NEM update. In addition there will be a table with copies of the documentation for review along with comment cards for written comments. The public is invited and encouraged to attend.

The San Antonio International Airport NEM update documentation, which includes the proposed amendments to two NCP measures, is available for review, from September 24 through October 23, 2014, at the following locations:

1. Central Library located at 600 Soledad, San Antonio, TX 78205
2. Thousand Oaks Branch Library located at 4618 Thousand Oaks, San Antonio, TX 78233
3. Tobin Branch Library at Oakwell located at 4134 Harry Wurzbach, San Antonio, TX 78209
4. Brookhollow Branch Library located at 530 Heimer, San Antonio, TX 78232
5. Westfall Branch Library located at 6111 Rosedale Ct., San Antonio, TX 78201
6. SAAS Environmental Stewardship Office located at 457 Sandau Road, San Antonio, TX 78216
7. On the project website at
<http://sanantonio.gov/Aviation/EnvironmentalStewardship/Noise.aspx>

For more information visit the project website at:

<http://sanantonio.gov/Aviation/EnvironmentalStewardship/Noise.aspx> or contact Steven Southers, Environmental Stewardship Manager, 210-207-3402 or Steven.Southers@sanantonio.gov.

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For more information, contact:
Steve Southers
210/207-3402 (office)
or
Linda Ximenes
210/354-2925 (office)
210/872-5928 (cell)

October 20, 2014

FOR IMMEDIATE RELEASE

SAN ANTONIO INTERNATIONAL AIRPORT UNVEILS UPDATED NOISE MAP

On Tuesday, October 21, the San Antonio Airport System (SAAS) is hosting an open house and public hearing to present data and results from the Noise Exposure Map (NEM) study and to propose revisions to the Noise Compatibility Program, at the Holiday Inn Airport, 77 NE Loop 410, in the Prairie Mesa Room. at 6:00 p.m. Noise Exposure Maps determine a home's potential eligibility for the acoustical treatment under the airport's Residential Acoustical Treatment Program (RATP). The Noise Exposure Map study involved collecting and analyzing current and forecasted operations at San Antonio International Airport.

Updating the NEM every five years is required by the Code of Federal Regulations Title 14, Part 150, Airport Noise Compatibility Planning and is necessary for federal funding eligibility.

-more-

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The public is invited to attend and submit input on the study and maps.

The NEM update documentation and the proposed changes to the two Noise
Compatibility Program measures are available for review at

<http://sanantonio.gov/Aviation/EnvironmentalStewardship/Noise.aspx>.

For more information, contact SAAS Environmental Stewardship Manager Steven
Southers at 210-207-3402 or

Steven.Southers@sanantonio.gov <<mailto:Steven.Southers@sanantonio.gov>>.

-#-

21 de septiembre de 2014

LA PRENSA DE SAN ANTONIO

3-A

Calendario de la comunidad

LANIER HIGH SCHOOL CLASS OF 1964 REUNION

The Lanier High School Class of 1964 is looking for graduates to attend the 50th Class Reunion. The event will be held Saturday, November 15, 2014. There will be music by Karizma (with Mansanto), a silent auction and door prizes. Social hour is from 6 p.m. - 7 p.m. Dinner and mariachi is from 7 p.m. - 8:30 p.m. A dance will follow from 8:30 p.m. to midnight. Tickets are \$20 per person. Contact Gloria Lopez Garay at (210) 684-2339 or Joe Gamez at (210) 736-4040 for more information.

PUBLIC HEARING FOR PROPOSED VIA BUDGETS

VIA Metropolitan Transit and the Advanced Transportation District announce the availability to comment on the proposed operating budgets for Fiscal Year 2014-15. VIA staff will present the proposed operating budgets at a public hearing to receive comments. This hearing will be held on Monday, September 15, 2014, 6 p.m., VIA Metro Center, 1021 San Pedro.

WORK STUDY JOB FAIR

A Work Study Job Fair will be held Tuesday, September 16, 2014, 9 a.m.-1 p.m., in the Oppenheimer Academic Center Room 320 at San Antonio College for those students that have been awarded College Work-Study. If you have not yet applied/been awarded, you may also attend to obtain information. Come into the Mi CASA CTL Lab located at the Empowerment Center for assistance with posting your application on People Link or to gain a few networking tips that can prepare you for the Job Fair.

C.I.O.C - The Cancer support group, Cancer Is One Cancer,

is holding its Annual Plate Sale, Saturday, September 20, 2014, Noon - 4 p.m., 123 Octavia at S. Flores, the \$6 plate donation helps fund holiday events for families affected by cancer. For more information, call (210) 328-5521

5K RUN FOR RECOVERY

The San Antonio State Hospital holds its Inaugural 5K Run for Recovery celebrating National Recovery Month, Saturday, September 27, 2014, at 6711 S. New Braunfels. The 5K course is three loops on hospital campus.

DECADES OF MEMORIES

Brackenridge High School Annual Reunion Dance honoring the Class of 1964 celebrating its 50th anniversary and the Class of 1969 celebrating its 45th anniversary, Saturday, November 22, 2014, Alzafar Shrine Temple Ballroom. Social hour from 7 p.m. - 8 p.m. Dance is 8 p.m. - midnight with music by Celsius. Tickets available at www.brackenridgereunion-dance.com

BRIGHT SHINING LIGHTS

Family Service Association's Festival of Lights "A Celebration of Stars," will take place Monday, November 24, 2014, from 6 p.m. to 9:30 p.m. at the new Tobin Center for Performing Arts located at 100 Auditorium Circle. For additional information, please contact Xochitl Cortez-Davis at (210) 299-2400 or visit www.family-service.org.

Calidad de vida



Esta semana aprendí a manejar mi cuerpo y a escucharlo, pues, aunque suene fuera de este mundo, nuestro cuerpo nos dice muchas cosas cuando hacemos ejercicio, cuando comemos, cuando dormimos y hasta cuando estamos estresados. Estoy a punto de cumplir un mes en Bikram yoga, un tipo de Hatha yoga que se realiza en un cuarto caliente durante 60 o 90 minutos. Esta semana definitivamente me sentí diferente, y es que durante las noches no podía dormir del dolor tan fuerte que sentía en mis piernas.

No sabía si era dolor muscular o si era un dolor en los huesos, pero lo que sí sé es que era muy fuerte y no me dejaba descansar. Le eché la culpa a mi clase y sentí que mi clase de yoga no era lo mejor que podía hacer para mantenerme saludable, pues solo pensaba en que como era posible que me doliera tanto mi cuerpo y de una manera tan incómoda.

En fin, decidí regresar a mi clase y platicarle a uno de mis instructores lo que me había sucedido.

Fue precisamente ahí que me enteré de lo mal que estaba haciendo las cosas, y, entre los instructores y mis compañeras, aprendí que no podemos dejar pasar por desapercibido lo que nuestro cuerpo nos pide.

"Ana Cristina, no te esfuerces tanto, deja que tu cuerpo te diga hasta dónde puedes llegar", me dijo una compañera de clase que lleva 12 años en Bikram yoga.

Entré a mi clase, seguí las instrucciones de mi instructora pero esta vez mucho menos tensa, más relajada y además sin presionar a mi cuerpo a hacer posiciones que solo me iban a lastimar.

Me di cuenta de que muchas veces solo buscamos competir contra nosotros mismos y retornar para demostrarnos que podemos con eso y con más. Pero nuestro cuerpo no habla, entonces tenemos que aprender a escucharlo por medio del dolor o de la incomodidad que vayan surgiendo.

Si sentimos que nos estamos esforzando demasiado, entonces sin importar la edad que tengamos, debemos de bajar el ritmo y el esfuerzo que le ponemos al cuerpo.

Del mismo modo levantando pesas, corriendo, nadando o practicando cualquier deporte, si nos sentimos comprometidos y con un ritmo cardíaco anormal, entonces lo mejor es bajar la intensidad de nuestro trabajo y aprender que si nos sobre esforzamos podemos dañarnos.

Cuando hagas ejercicio ¡no te quieras comer el mundo a mordidas! Siempre hay tiempo para avanzar y para llegar a tu meta. Llévate tu vida con calma, ten paciencia y haz las cosas a su debido tiempo.

NOTIFICACION DE UNA REUNION PUBLICA/AUDIENCIA PUBLICA RESPECTO AL TITULO 14, CODIGO DE REGLAMENTOS FEDERALES PARTE 150 ACTUALIZACION DEL MAPA DE EXPOSICION AL RUIDO PARA EL AEROPUERTO INTERNACIONAL DE SAN ANTONIO, TEXAS

Para asegurar una oportunidad completa para que el público haga comentarios, el Sistema del Aeropuerto Internacional de San Antonio (SAAS por sus siglas en inglés) conducirá una reunión pública el martes, 21 de octubre de 2014 para presentar los resultados de la actualización del Mapa de Exposición al Ruido (NEM por sus siglas en inglés) para el Aeropuerto de San Antonio. El estudio del NEM examina las actuales operaciones del aeropuerto y el pronóstico para los próximos cinco años así como el estado actual del Programa para la Compatibilidad con el Ruido para poder actualizar el NEM para que refleje las condiciones actuales y anticipadas en el futuro. El NEM se usa, entre otros usos, para determinar los áreas alrededor del aeropuerto que potencialmente serán aptos para mitigación del ruido, así como el Programa de Tratamiento Acústico Residencial (RATP por sus siglas en inglés) administrado actualmente por el SAAS. Adicionalmente, SAAS está modificando dos medidas de mitigación dentro de su Programa para la Compatibilidad con el Ruido (NCP por sus siglas en inglés).

Para presentar las actualizaciones al NEM y recibir comentarios, SAAS conducirá una reunión pública en el salón Prairie Mesa del Holiday Inn Airport, 77 NE Loop 410, 78216 el 21 de octubre de 2014. La reunión comenzará con una exhibición abierta al público a las 6:00 p.m. y una presentación a las 6:30 p.m. Un reportero judicial estará disponible para escuchar y anotar comentarios orales inmediatamente después de la presentación de la actualización del NEM. También habrá una mesa con copias de la documentación para revisar junto con hojas para hacer comentarios escritos. El público está invitado y se les anima asistir.

La documentación para la actualización del NEM para el Aeropuerto Internacional de San Antonio lo cual incluye las modificaciones propuestas a las dos medidas del INCP, estará disponible para revisar del 24 de septiembre hasta el 23 de octubre de 2014, en las localidades a continuación:

1. Biblioteca Central localizada en 600 Soledad, San Antonio, TX 78205
2. Biblioteca Sucursal Thousand Oaks localizada en 4618 Thousand Oaks, San Antonio, TX 78233
3. Biblioteca Sucursal Tobin en Oakwell localizada en 4134 Harry Wurzbach, San Antonio, TX 78209
4. Biblioteca Sucursal Brookhollow localizada en 530 Heimer, San Antonio, TX 78232
5. Biblioteca Sucursal Westfall localizada en 6111 Rosedale Ct., San Antonio, TX 78201
6. SAAS Environmental Stewardship Office localizada en 457 Sandau Road, San Antonio, TX 78216
7. En el sitio web del proyecto en: <http://sanantonio.gov/Aviation/EnvironmentalStewardship/Noise.aspx>

Para más información visite el sitio web en: <http://sanantonio.gov/Aviation/EnvironmentalStewardship/Noise.aspx> o comuníquese con Steven Southers, Environmental Stewardship Manager, 210-207-3402 o Steven.Southers@sanantonio.gov.

ALAMO COLLEGES BID/PROPOSAL INVITATION

The Alamo Colleges is receiving sealed bids/proposals prior to 2:00 PM Local Time, unless otherwise indicated, on the dates shown.

REQUEST FOR COMPETITIVE SEALED BIDS FOR THE PURCHASE OF CONTRUCTION SERVICES FOR RENOVATION OF CONCHO HALL & GALLERY PHASE I & II

ALAMO COLLEGE- PALO ALTO COLLEGE

CSB 15C-003
Deadline: 10/23/14

Pre-Bid Meeting- October 8, 2014 at 9:00 am
Palo Alto College, 1400 W. Villaret Blvd.
Performing Arts Room 101, San Antonio, TX 78224

For more information, contact Sr. Purchaser, Tina Farias, at 210/485-0115.

Bids/proposals to be delivered as follows:

By U.S. Mail or Courier Service:

Alamo Colleges
Purchasing and Contract Administration Department
1300 San Pedro Ave., Box 693
San Antonio, TX 78212

By hand delivery by Bidder/Offeror:

Alamo Colleges
Purchasing and Contract Administration Department
1743 N. Main Ave, Bldg 41, Room 101
San Antonio, TX 78212

Bids/proposals received will be publicly acknowledged in the Conference Room #401 at the hand delivery address. Specifications are available by visiting Alamo College's website www.alamo.edu/district/purchasing.



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The San Antonio Light | EN Community & Military Newspapers

SAN ANTONIO EXPRESS NEWS
AFFIDAVIT OF PUBLICATION

STATE OF TEXAS:
COUNTY OF BEXAR

Before me, the undersigned authority, a Notary Public in and for the State of Texas, on this day personally appeared: Lynette Nelson, who after being duly sworn, says that she is the BOOKKEEPER of THE HEARST CORPORATION (SAN ANTONIO EXPRESS-NEWS DIVISION), a daily newspaper published in Bexar County, Texas and that the publication, of which the annexed is a true copy, was published to wit:

Customer ID: 707428
Customer Name: Ximenes & Associates
Order ID: 2636762

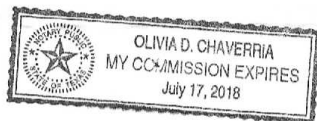
Publication	Pub Date
EN Classified	11-OCT-14


Lynette Nelson
Bookkeeper

Sworn and subscribed to before me, this 13 day of Oct. A.D. 2014

Notary public in and for the State of Texas





NOTICE OF PUBLIC
MEETING/HEARING ON TITLE 14
CODE OF FEDERAL REGULATIONS
PART 150 AIRPORT NOISE
EXPOSURE MAP UPDATE FOR
SAN ANTONIO
INTERNATIONAL AIRPORT
SAN ANTONIO, TEXAS

To ensure full opportunity for public comment, the San Antonio Airport System (SAAS) will hold a Public Meeting on Tuesday, October 21, 2014 to present the results of the Noise Exposure Map (NEM) update for the San Antonio International Airport. The NEM study examines the existing and the five-year forecast of the airport's operations as well as the current status of the Noise Compatibility Program in order to update the NEM to current and future anticipated conditions. The NEM is used, among other things, to determine the areas around the Airport that are potentially eligible for noise mitigation, such as the Residential Acoustic Treatment Program (RATP) currently administered by SAAS. In addition, SAAS is amending two noise mitigation measures within their Noise Compatibility Program (NCP).

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6. SAAS Environmental Stewardship Office located at 457 Sandau Road, San Antonio, TX 78216
7. On the project website at <http://sanantonio.gov/Aviation/EnvironmentalStewardship/Noise.aspx>

For more information visit the project website at: <http://sanantonio.gov/Aviation/EnvironmentalStewardship/Noise.aspx> or contact Steven Southerns, Environmental Stewardship Manager, 210-207-3402 or Steven.Southerns@sanantonio.gov.

14
LA PRENSA DE SAN ANTONIO
8 de octubre de 2014

CLASIFICADOS

EMPLEOS

(10/08/14)

National tank truck company seeks a terminal manager in San Antonio area. 3 years cargo tank and supervision experience.

(10/19/14)

Silk, shift, and pant pressers, for NE Dry Cleaners. Start at \$12 an hour. Call to apply. (210) 494-7966. Must have experience.

(10/19/14)

Drivers - Owner Operators/ Company Drivers Wanted! \$2,000 Sign-On Bonus! Long Haul! 53k. Vans. USA-Canada NEW!!! 0.0 - \$.95 P/MILE + FUEL SURCHARGE Texas based company. RECRUITING: (713) 674-4206.

RENTA

(10/05/14)

bienes pagados \$550. (210) 862-3873.

(10/12/14)

1 bedroom - 1 bath, fenced

Reparación de lavadoras, secadoras y refrigeradores, estimado gratis. Trabajo rápido a domicilio garantizado.

(10/12/14)

tería, hago baños. Habla con Jesús Villa. Llame a (210) 797-6677.

NOTICE TO SUBCONTRACTORS

Capital Excavation Company is soliciting bids from certified SBES, MBEs and WBEs to work on Knoll Creek (between Classen Road and Jung Road) (SC-4) IFB 2014-018 that bids to Bexar County on Friday, October 10, 2014 at 10:00 am. Documents may be found at www.civcastusa.com. Plans are also available for viewing at our office at 2967 Business Park Dr, Buda, TX 78610. Please email bids to estimating@capitalexcavation.com or fax to 512-312-2050. If you have any questions, please call 512-440-1717.

Request for Proposals

#1409-920-02-4256

The **SAN ANTONIO HOUSING AUTHORITY** and its Affiliates request proposals for:

Data Broker Services. Proposals will be received until 2:00 p.m. (CST) on, November 4, 2014 and publicly opened at that time at the offices of the SAHA Procurement Department, 818 S. Flores, San Antonio, Texas 78204. A pre-submittal meeting will be held on October 15, 2014 at 10:00 a.m. (CST) at the SAHA Central Office, 818 S. Flores, San Antonio, Texas 78204

This is a Section 3 covered contract. As a result, contractors will be required to provide economic, educational and/or training opportunities to very low and low income individuals.

Specifications packages are available online at <http://www.saha.org>, or at <http://www.nahro.economicengine.com>, or at SAHA's Office of Procurement, located at 818 S. Flores, San Antonio, Texas 78204 or by calling (210) 477-6059.

San Antonio Housing Authority
By: Lourdes Castro Ramirez
President and CEO

NOTIFICACION DE UNA REUNION PUBLICA/AUDIENCIA PUBLICA RESPECTO AL TITULO 14, CODIGO DE REGLAMENTOS FEDERALES PARTE 150 ACTUALIZACION DEL MAPA DE EXPOSICION AL RUIDO PARA EL AEROPUERTO INTERNACIONAL DE SAN ANTONIO, TEXAS

Para asegurar una oportunidad completa para que el público haga comentarios, el Sistema del Aeropuerto Internacional de San Antonio (SAAS por sus siglas en inglés) conducirá una reunión pública el martes, 21 de octubre de 2014 para presentar los resultados de la actualización del Mapa de Exposición al Ruido (NEM por sus siglas en inglés) para el Aeropuerto de San Antonio. El estudio del NEM examina las actuales operaciones del aeropuerto y el pronóstico para los próximos cinco años así como el estado actual del Programa para la Compatibilidad con el Ruido para poder actualizar el NEM para que refleje las condiciones actuales y anticipados en el futuro. El NEM se usa, entre otros usos, para determinar las áreas alrededor del aeropuerto que potencialmente serán aptos para mitigación del ruido, así como el Programa de Tratamiento Acústico Residencial (RATP por sus siglas en inglés) administrado actualmente por el SAAS. Adicionalmente, SAAS está modificando dos medidas de mitigación dentro de su Programa para la Compatibilidad con el Ruido (NCP por sus siglas en inglés).

Para presentar las actualizaciones al NEM y recibir comentarios, SAAS conducirá una reunión pública en el salón Prairie Mesa del Holiday Inn Airport, 77 NE Loop 410, 78216 el 21 de octubre de 2014. La reunión comenzará con una exhibición abierta al público a las 6:00 p.m. y una presentación a las 6:30 p.m. Un reportero judicial estará disponible para escuchar y anotar comentarios orales inmediatamente después de la presentación de la actualización del NEM. También habrá una mesa con copias de la documentación para revisar junto con hojas para hacer comentarios escritos. El público está invitado y se les anima asistir.

La documentación para la actualización del NEM para el Aeropuerto Internacional de San Antonio lo cual incluye las modificaciones propuestas a las dos medidas del NCP, estará disponible para revisar del 24 de septiembre hasta el 23 de octubre de 2014, en las localidades a continuación:

1. Biblioteca Central localizada en 600 Soledad, San Antonio, TX 78205
2. Biblioteca Sucursal Thousand Oaks localizada en 4618 Thousand Oaks, San Antonio, TX 78233
3. Biblioteca Sucursal Tobin en Oakwell localizada en 4134 Harry Wurzbach, San Antonio, TX 78209
4. Biblioteca Sucursal Brookhollow localizada en 530 Heimer, San Antonio, TX 78232
5. Biblioteca Sucursal Westfall localizada en 6111 Rosedale Ct., San Antonio, TX 78201
6. SAAS Environmental Stewardship Office localizada en 457 Sandau Road, San Antonio, TX 78216
7. En el sitio web del proyecto en: <http://sanantonio.gov/Aviation/EnvironmentalStewardship/Noise.aspx>

Para más información visite el sitio web en: <http://sanantonio.gov/Aviation/EnvironmentalStewardship/Noise.aspx> o comuníquese con Steven Southers, Environmental Stewardship Manager, 210-207-3402 o Steven.Southers@sanantonio.gov.

STATE OF TEXAS

COUNTY OF BEXAR

Before me, a Notary Public in and for Bexar County,
this day personally appeared Tino Duran Jr., Vice President of Operations of La
Prensa De San Antonio who being duly sworn by oath, stated that Ximenes &
Associates, Inc requested a publication for Public Notice: Audiencia Publica
where, it was published in La Prensa Bilingual Newspaper on October 8, 2014.

Tino Duran Jr.

Signature

SWORN AND SUBSCRIBED BEFORE ME THE 9th DAY OF
OCTOBER 2014.

Annai Vieyra
Notary Public

My Commission expires:



12 de octubre de 2014

at Pearl Brewery on Saturday, October 18, 2014. Hours are from 9am - 3pm, with free admission, free seminars and free parking.

The 2014 Herb of the Year is artemisia, and has been used for centuries in many cultures. Bible references "wormwood," and indicate it was an herb known for its bitterness. It was used in many ways, spanning culinary, ornamental and medicinal practices, but its aromatic leaves are used primarily for flavoring.

Chef Stephen Paprocki, executive chef and general manager at NuStar Energy café, Grill on the Hill, will focus on artemisia in his culinary presentation. He will discuss his views on this particular herb and sample artemisia tea, mugwort soup and absinthe ice cream.

Gege Reid, local chef and

ing her nookie salad. Recipes will be available.

The program for the Herb Market includes seminars on Growing Artemisia, Herbs for Your Garden, Efficient Irrigation, Gardening in Containers and cooking demos.

The Ask the Experts booth will be staffed by local professionals and specialists to answer your herb and gardening questions throughout the day.

Jr. Master Gardeners will have an area for children to pot an herb to take home and begin their gardening and culinary adventures. At this event, you can purchase herbs both familiar and exotic, and celebrate this year's "Herb of the Year." Food items, herbal blends, candles and other herbal items will also be available.

The San Antonio Herb Market

event that brings herbivores and herbal experts together to gain knowledge of growing, "up and coming" herbs, trends, culinary uses and more. The nutritional and dietary information is shared with Herb Market visitors, as well as other educational venues throughout San Antonio and the surrounding area during the year.

Organized by the San Antonio Herb Market Association, the Presenting Sponsor is the San Antonio Water System. Other Sponsors include, Fanick's Nursery, Natures Herb Farm, Rainbow Gardens, San Antonio Herb Society, Bexar County Master Gardeners, Gardening Volunteers of South Texas, Sandy Oaks Olive Orchard, and Millberger's.

For more information on events and scheduling, visit www.sanantonioherbmarket.org

LA PRENSA DE SAN ANTONIO

better that we can do. It'll be a learning curve from that side of the coin," he added.

Emerson said he wants to see how KLRN can do a better job and how it may be a better steward in meeting the requirements needed for the community.

"The station already does a sensational job," he said in closing. "It's been doing it for 50 years or more."

Special guests: Sunny Ozuna, Little Joe, Ruben Ramos, Joe Bravo, David Mares, Ram Herrera, Patsy Torres, Jorge Alejandro, Max Baca/Tex Maniacs and other Tejano Artists.

Music by: Gibby Escobedo and the Band, Top Shelf Band, Canela, El Garibay/Cats Don't Sleep and Liberty Band de Bobby Esquivel

Buy tickets at: Del Bravo Record Shop, Janie's Record Shop, Minimi Record Shop and Royal Palace Ballroom

ONLY \$600 TICKETS WILL BE SOLD AND EVERYONE MUST HAVE A TICKET TO COME IN. (no children allowed)

Aeropuerto Internacional de San Antonio Audiencia Pública para el Aeropuerto

Martes, 21 de octubre de 2014
6:00 p.m.
Holiday Inn al Aeropuerto
77 NE Loop 410
San Antonio, TX 78216

Una oportunidad para comentario del público respecto a la Actualización del Parte 150

El Parte 150 es un programa federal voluntario, administrado por la FAA, que determina pautas para el uso de aeropuertos para que puedan documentar la exposición al ruido de los aeronaves, y para establecer programas para reducir las faltas de compatibilidad con usos de terrenos alrededor.



San Antonio
International
Airport

Actualización del Mapa de Exposición al Ruido Parte 150 del 14 CFR

El Parte 150 del 14 Código de Reglamentos Federales (conocido como CFR por su sigla en inglés) define los niveles y sistemas para:

- Medir el ruido
- Estimar el ruido usando modelos informáticos
- Describir la exposición al ruido
- Documentar el proceso analítico
- Coordinar el desarrollo del programa para compatibilidad con oficiales locales del uso de los terrenos y otros interesados
- Revisar los procesos de la Administración Federal de Aviación (conocido como FAA por su sigla en inglés) y públicos.

Para más información, visite el sitio web del proyecto en: <http://sanantonio.gov/Aviation/Environmental-Stewardship/Noise.aspx> o comuníquese con Steven Southers, Gerente de Administración del Medio Ambiente al 210-207-3402 o Steven.Southers@sanantonio.gov.

			
SAN ANTONIO HERB MARKET			
SATURDAY, OCTOBER 18, 2014			
HISTORIC PEARL BREWERY 312 PEARL PARKWAY 9 AM-3 PM			
FREE ADMISSION FREE PARKING FREE SEMINARS			
LEARN ABOUT THE HERB OF THE YEAR, ARTEMISIA			
COOKING DEMONSTRATION FEATURING CHEF STEPHEN PAPROCKI			
			

NATION

Crowd grows on Day 2 of police protest

ASSOCIATED PRESS

ST. LOUIS — Thousands gathered Saturday for a second day of organized rallies and marches protesting Michael Brown's death and other fatal police shootings in the St. Louis area and elsewhere.

Marchers started assembling in the morning in downtown St. Louis, where later in the day the Cardinals hosted the San Francisco Giants in the first game of the National League Championship Series.

Spurred by a national campaign dubbed Ferguson October, a diverse crowd joined forces. Vietnam-era peace activists, New York City seminarists and hundreds of fast-food workers bused in from Chicago, Nashville and other cities marched alongside local residents.

Four days of events are planned. They started Friday afternoon with a march outside the St. Louis County prosecutor's office in Clayton. Protesters renewed calls for prosecutor Bob McCulloch to charge Darren Wilson, a white Ferguson officer, in the Aug. 9 death of Brown, a black, unarmed 18-year-old. A grand jury is reviewing the case, and the Justice Department has opened a civil rights investigation.

"We still are knee-deep in this situation," said Kareem Jackson, a St. Louis rap artist and community organizer whose stage name is Tef Poe.



Scott Olson / Getty Images

The crowd included demonstrators from other cities as well as St. Louis residents. Acts of civil disobedience are planned for Monday.

"We have not packed up our bags, we have not gone home. This is not a fly-by-night moment. This is not a made-for-TV revolution. This is real people standing up to a real problem and saying, 'We ain't taking it no more.'"

The downtown march came hours before the Cardinals game at Busch Stadium, just blocks from the protest route. Earlier in the week, a small group of protesters verbally clashed outside the stadium with Cardinals fans who support the Ferguson officer.

"What I ask is, if people come to have their message heard, that they do it in a respectful way," St. Louis Police Chief Sam Dotson said. "And the same thing on the other side. Everybody has a right to have their message heard, whether you like it or not."

He said the city also will bolster its police presence when the St.



Rex Arbogast / Associated Press

More than 1,000 people gathered in downtown St. Louis to protest the fatal police shootings of Michael Brown and other African-Americans. The rallies are scheduled to continue Sunday and Monday.

Louis Rams host the San Francisco 49ers in a nationally televised game Monday night — the same day protesters are planning organized acts of civil disobedience.

The crowd Saturday was significantly larger than the ones at Friday's protests in Ferguson and Clayton. While the main focus of the march was on recent police shootings, participants also embraced such causes as gay rights and the Israeli-Palestinian conflict.

The situation in Missouri especially resonated with Ashlee Wiest-Laird, 48, a Baptist pastor from Boston. She's white and her adopted sons, ages 14 and 11, are black.

"What I see happening here is a moment in time. There's something bigger here," she said.

Since Brown's death, three other fatal police shootings of black males have occurred in the St. Louis area.

Airport Public Hearing



San Antonio
International
Airport

**Airport Noise Exposure Map Update
14 CFR Part 150**

14 CFR Part 150 defines specific
standards and systems to :

- Measure noise
- Estimate noise using computer models
- Describe noise exposure
- Document the analytical process
- Coordinate compatibility program development with local land use officials and other interested parties
- Review FAA and public processes

Tuesday, October 21, 2014
6:00 p.m.
Holiday Inn Airport
77 NE Loop 410
San Antonio, TX 78216

Opportunity for public
comment on Part 150 Update

Part 150 is a voluntary federal program, administered by the Federal Aviation Administration (FAA), that sets guidelines for airports to use in documenting aircraft noise exposure, and in establishing programs to minimize incompatibilities with surrounding land uses.

For more information visit the project website at: <http://sanantonio.gov/Aviation/Environmental-Stewardship/Noise.aspx> or contact Steven Southers, Environmental Stewardship Manager, 210-207-3402 or Steven.Southers@sanantonio.gov.

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PARTNERS SHOPPING CARD OCTOBER 17 - 26



Cancer doesn't
recognize
she's a mom.

STATE OF TEXAS

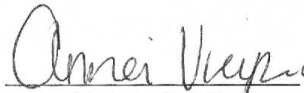
COUNTY OF BEXAR

Before me, a Notary Public in and for Bexar County,
this day personally appeared Tino Duran Jr., Vice President of Operations of La
Prensa De San Antonio who being duly sworn by oath, stated that Ximenes &
Associates, Inc requested a publication for Public Notice: Notificacion de Una
Reunion Publica where, it was published in La Prensa Bilingual Newspaper on
October 26, 2014.



Signature

SWORN AND SUBSCRIBED BEFORE ME THE 28th DAY OF
OCTOBER 2014.


Notary Public

My Commission expires:



26 de octubre de 2014

LA PRENSA DE SAN ANTONIO



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Para ser una cita llama al

Nina Pham... (viene de la página 1-A)

en su país natal sin él saberlo y desarrolló después los síntomas cuando ya estaba en los Estados Unidos.

Duncan, quien llegó en septiembre a EEUU para casarse con su prometida, falleció a principios de octubre a causa del ébola en el hospital de Dallas.

La otra enfermera contagiada, Vinson, fue trasladada para recibir tratamiento en el Hospital

Emory de Atlanta y el pasado miércoles su familia anunció que también ha superado la enfermedad.

Asimismo, Ashoka Mukpo, el camarógrafo de la cadena NBC que contrajo el ébola en Liberia y fue repatriado para recibir tratamiento en EEUU, abandonó también esta semana el hospital de Nebraska donde permanecía ingresado después

de que un análisis san confirmara que ya está libre de la enfermedad.

Mientras, las autoridades de Nueva York confirmaron pasado jueves por la noche un médico que había estado bajando en Guinea, Craig Cer, fue diagnosticado como en una prueba preliminar: que sintió los primeros síntomas y quedó aislado en un hospital.

NOTIFICACION DE UNA REUNION PUBLICA/AUDIENCIA PUBLICA RESPECTO TITULO 14, CODIGO DE REGLAMENTOS FEDERALES PARTE 150 ACTUALIZACION DEL MAPA DE EXPOSICION AL RUIDO PARA EL AEROPUERTO INTERNACIONAL SAN ANTONIO, TEXAS

Para asegurar una oportunidad completa para que el público haga comentarios, el Sistema del Aeropuerto Internacional de San Antonio (SAAS por sus siglas en inglés) conducirá una reunión pública el lunes, 10 de noviembre de 2014 para presentar los resultados de la actualización del Mapa de Exposición al Ruido (NEM por sus siglas en inglés) para el Aeropuerto de San Antonio. El estudio del NEM examina las actuales operaciones del aeropuerto y pronóstico para los próximos cinco años así como el estado actual del Programa de Compatibilidad con el Ruido para poder actualizar el NEM para que refleje las condiciones actuales y anticipadas en el futuro. El NEM se usa, entre otros usos, para determinar áreas alrededor del aeropuerto que potencialmente serán aptas para mitigación del ruido así como el Programa de Tratamiento Acústico Residencial (RATP por sus siglas en inglés) administrado actualmente por el SAAS. Adicionalmente, SAAS está modificando medidas de mitigación dentro de su Programa para la Compatibilidad con el Ruido (NCP por sus siglas en inglés).

Para presentar las actualizaciones al NEM y recibir comentarios, SAAS conducirá una reunión pública en el salón de banquetes de la Iglesia Católica Holy Spirit en 8134 E Road, 78216, el lunes, 10 de noviembre de 2014. La reunión comenzará con una exhibición abierta al público a las 6:00 p.m. y una presentación a las 6:30 p.m. Un reportero estará disponible para escuchar y anotar comentarios orales inmediatamente después de la presentación de la actualización del NEM. También habrá una mesa con copias de documentación para revisar junto con hojas para hacer comentarios escritos. El público está invitado y se les anima a asistir.

La documentación para la actualización del NEM para el Aeropuerto Internacional de San Antonio lo cual incluye las modificaciones propuestas a las dos medidas del NCP, está disponible para revisar del 24 de septiembre hasta el 1 de diciembre de 2014, en las siguientes direcciones:

1. Biblioteca Central localizada en 600 Soledad, San Antonio, TX 78205
2. Biblioteca Sucursal Thousand Oaks localizada en 4618 Thousand Oaks, San Antonio, TX 78233
3. Biblioteca Sucursal Tobin en Oakwell localizada en 4134 Harry Wurzbach, San Antonio, TX 78209
4. Biblioteca Sucursal Brookhollow localizada en 530 Heimer, San Antonio, TX 78232
5. Biblioteca Sucursal Westfall localizada en 6111 Rosedale Ct., San Antonio, TX 78232
6. SAAS Environmental Stewardship Office localizada en 457 Sandau Road, San Antonio, TX 78216
7. En el sitio web del proyecto en: <http://sanantonio.gov/Aviation/EnvironmentalStewardship/Noise.aspx>



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The San Antonio Light | EN Community & Military Newspapers

**SAN ANTONIO EXPRESS NEWS
AFFIDAVIT OF PUBLICATION**

**STATE OF TEXAS:
COUNTY OF BEXAR**

Before me, the undersigned authority, a Notary Public in and for the State of Texas, on this day personally appeared: Lynette Nelson, who after being duly sworn, says that she is the BOOKKEEPER of THE HEARST CORPORATION (SAN ANTONIO EXPRESS-NEWS DIVISION), a daily newspaper published in Bexar County, Texas and that the publication, of which the annexed is a true copy, was published to wit:

Customer ID: 707428
Customer Name: Ximenes & Associates
Order ID: 2642883

Publication	Pub Date
EN Classified	26-OCT-14


Lynette Nelson
Bookkeeper

Sworn and subscribed to before me, this 27 day of Oct. A.D. 2014

Notary public in and for the State of Texas





**NOTICE OF PUBLIC
MEETING/HEARING ON TITLE 14
CODE OF FEDERAL REGULATIONS
PART 150 AIRPORT NOISE
EXPOSURE MAP UPDATE
FOR SAN ANTONIO
INTERNATIONAL AIRPORT
SAN ANTONIO, TEXAS**

To ensure full opportunity for public comment, the San Antonio Airport System (SAAS) will hold a Public Meeting on Monday, November 10, 2014 to present the results of the Noise Exposure Map (NEM) update for the San Antonio International Airport. The NEM study examines the existing and the five-year forecast of the airport's operations as well as the current status of the Noise Compatibility Program in order to update the NEM to current and future anticipated conditions. The NEM is used, among other things, to determine the areas around the Airport that are potentially eligible for noise mitigation, such as the Residential Acoustic Treatment Program (RATP) currently administered by SAAS. In addition, SAAS is amending two noise mitigation measures within their Noise Compatibility Program (NCP).

To present the NEM update and receive comments, SAAS will conduct a public meeting in the Banquet Hall of the Holy Spirit Catholic Church, 8134 Blanco Road, 78216. The meeting will begin with an open house at 6:00 p.m. and a presentation at 6:30 p.m. A stenographer will be available to hear and record oral comments immediately following the presentation of the NEM update. In addition there will be a table with copies of the documentation for review along with comment cards for written comments. The public is invited and encouraged to attend.

The San Antonio International Airport NEM update documentation, which includes the proposed amendments to two NCP measures, is available for review from September 24 through December 1, 2014, at the following locations:

1. Central Library located at 600 Soledad, San Antonio, TX 78205
2. Thousand Oaks Branch Library located at 4619 Thousand Oaks, San Antonio, TX 78233
3. Tobin Branch Library at Oakwell located at 4134 Harry Wurzbach, San Antonio, TX 78209
4. Brookhollow Branch Library located at 530 Helmer, San Antonio, TX 78232
5. Westfall Branch Library located at 6111 Rosedale Ct., San Antonio, TX 78201
6. SAAS Environmental Stewardship Office located at 457 Sandau Road, San Antonio, TX 78216
7. On the project website at <http://sanantonio.gov/Aviation/EnvironmentalStewardship/Noise.aspx>

For more information visit the project website at: <http://sanantonio.gov/Aviation/EnvironmentalStewardship/Noise.aspx> or contact Steven Southern, Environmental Stewardship Manager, 210-207-3402 or Steven.Southern@sanantonio.gov.

Aeropuerto Internacional de San Antonio Audiencia Pública para el Aeropuerto

Lunes, 10 de noviembre de 2014
6:00 p.m.
Iglesia Católica del Espíritu Santo
Salón de Banquetes
8134 Blanco Road
San Antonio, TX 78216

Una oportunidad para comentario del público respecto a la Actualización del Parte 150

El Parte 150 es un programa federal voluntario, administrado por la FAA, que determina pautas para el uso de aeropuertos para que puedan documentar la exposición al ruido de los aeronaves, y para establecer programas para reducir las faltas de compatibilidad con usos de terrenos alrededor.

Favor de notar: el contenido de esta reunión será esencialmente igual a lo de la reunión previa que se hizo el 21 de octubre.



San Antonio International Airport

Actualización del Mapa de Exposición al Ruido Parte 150 del 14 CFR

El Parte 150 del 14 Código de Reglamentos Federales (conocido como CFR por su sigla en inglés) define los niveles y sistemas para:

- *Medir el ruido*
- *Estimar el ruido usando modelos informáticos*
- *Describir la exposición al ruido*
- *Documentar el proceso analítico*
- *Coordinar el desarrollo del programa para compatibilidad con oficiales locales del uso de los terrenos y otros interesados*
- *Revisar los procesos de la Administración Federal de Aviación (conocido como FAA por su sigla en inglés) y públicos.*

Para más información, visite el sitio web del proyecto en :
<http://sanantonio.gov/Aviation/Environmental-Stewardship/Noise.aspx> o comuníquese con Steven Southers, Gerente de Administración del Medio Ambiente al 210-207-3402 ó <Steven.Southers@sanantonio.gov>.



Community Newsletter

Quick Links:

[311 Online Request](#)

[NEC Improvement Partnership](#)

[Find a Park Near You!](#)

[TIP 411](#)

[Employment Opportunities](#)

[City Events Calendar](#)

Upcoming Important Meetings:

Nov. 17, 2014, 7pm

Northeast
Neighborhood
Alliance

Where: [Tool Yard](#)

Dec. 8, 2014, 6pm

D10 Community
Christmas party

Where: [Tool Yard](#)

Contact District 10:

November 7, 2014

Dear District 10 Residents,

Thank you to everyone who joined me at the District 10 Community BBQ. We had over 400 people attend and the San Antonio Food Bank collected over 230 pounds of non-perishable items.

The City Council has taken up several issues that impact our community over the past few weeks. Conservation efforts were led to protect the Bracken Bat Cave that is home to almost 20 million Mexican free-tail bats. These efforts also preserve the Edwards Aquifer, which supplies water to San Antonio and surrounding cities.

Last week, City Council approved the contract between San Antonio Water System (SAWS) and Vista Ridge Consortium that will bring 16.3 billion gallons of new non-Edwards Aquifer water annually for 30 years. SAWS will own the 142-mile pipeline that transports water from Burleson County to San Antonio. The Vista Ridge project is a drought-proof supply that will be delivered even in the deepest drought.

I am very happy to mention that the proposed ban on handheld devices while driving was voted on yesterday, and it passed with unanimous support. This action will help improve public safety on our roads. The ban will go into effect on January 1, 2015 and there will

Field Office
210.207.0999

City Hall
210.207.7276

[E-mail Me](#)

[Visit the website](#)

**Want to publicize
your neighborhood
event?**

If so, please send an
e-mail to [Lauren
Sides](#) to make a
request to post on
our Facebook page!

be a 30 day grace period in which warnings will be issued. After the grace period, all violations will result in a \$200 fine.

Congratulations to all of the November election winners. I look forward to working with everyone to help make our community that much greater! Thanks to all of you who turned out to vote!

If you would like to see what Council will be reviewing next week, you may view the agenda [here](#). Please reach out to me if you should have any comments or concerns in District 10.

Sincerely,

Councilman Mike Gallagher
District 10

City Hosts HHW and MedDropSA event this Saturday!

The City's Solid Waste Management Department (SWMD) will host a household hazardous waste (HHW) collection event this Saturday, November 8, 2014 from 8 a.m.-1 p.m. at Divine Providence Catholic Church, 5667 Old Pearsall Road.

Materials such as paint, varnish, antifreeze, fertilizer, motor oil, batteries, fluorescent bulbs and drain cleaners should be brought to the event in their original containers. When visiting the mobile event, residents are asked to bring a current CPS Energy bill and picture I.D.

In addition to the HHW event, SWMD - in conjunction with the San Antonio Water System (SAWS) and the San Antonio Police Department (SAPD) - also will host a MedDropSA event. Residents looking to dispose of unwanted medications can bring them to this event to have them disposed of safely for free.

For more information on the mobile HHW event click [here](#) or call 3-1-1. And for more info on MedDropSA, click [here](#).

FREE!

THE PARKS AND RECREATION DEPARTMENT
INVITES YOU TO JOIN US FOR A:
**VETERANS DAY
FITNESS CHALLENGE 2014**
LADY BIRD JOHNSON PARK, 10700 NACOGDOCHES
TUESDAY, NOV. 11 * 10 a.m. to 12 noon



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CITY OF SAN ANTONIO
PARKS & RECREATION



CITY OF SAN ANTONIO
AVIATION DEPARTMENT

SAN ANTONIO INTERNATIONAL AIRPORT UNVEILS UPDATED NOISE MAP

The San Antonio Airport System (SAAS) is hosting a second open house and public hearing to present data and results from the Noise Exposure Map (NEM) study and to propose revisions to the Noise Compatibility Program at **6 p.m. Monday, Nov. 10** at the Holy Spirit Catholic Church, 8134 Blanco Road.

Noise Exposure Maps determine a home's potential eligibility for acoustical treatment under the airport's Residential Acoustical Treatment Program (RATP). The Noise Exposure Map study involved

collecting and analyzing current and forecasted operations at the San Antonio International Airport.

The NEM update documentation and the proposed changes to the two Noise Compatibility Program measures are available for review [here](#).

The deadline to submit comments to be included in the NEM Study Report submitted to the Federal Aviation Administration (FAA) is 5 p.m. Thursday, Nov. 13, 2014.

For more information, contact SAAS Environmental Stewardship Manager Steven Southers at 210-207-3402 or Steven.Southers@sanantonio.gov.



CPS Energy will host a barbeque cook-off fundraiser that will bring together CPSE employees, and REAP partners, with the community to raise funds for the Residential Assistance Partnership (REAP). The event will be held on Saturday, November 15 at Mission County Park.

Click [here](#) for more information.

DISTRICT 10 FIELD OFFICE CLOSED FOR THE FOLLOWING DATES:

November 11- Veterans Day
November 27 & 28- Thanksgiving Holiday

Veterans Day holiday schedule of services is as follows:

Garbage collection-

Recycling, garbage and organics recycling collection will take place, as well as brush collection.

Bitters Brush Recycling Center, 1800 E. Bitters Rd.; Nelson Gardens Brush Recycling Center, 8963 Nelson Rd.; Bitters Bulky Waste Center, 1800 E. Bitters Rd.; and Frio City Road Bulky Waste Center, 1531 Frio City Rd. will be open.

Household Hazardous Waste Facility, 7030 Culebra Rd. will be closed.

Dead Animal Collection crews will be on duty.

Closed City Facilities-

Animal Care Services lobby and Adoption Center

Central Library and all branch libraries

Municipal Court, 401 S. Frio

All Parks and Recreation Department Community Centers and Senior Centers will be closed.

The McFarlin Tennis Center, the San Antonio Natatorium, and the Enrique Barrera Community Fitness Center will be closed.

The Parks and Recreation Ron Darner Headquarters will be closed.

There will be no Fitness in the Park classes held.

Dr. Manuel P. Berriozabal Café College, City of San Antonio Senior

Centers and Nutrition Sites, City of San Antonio Emergency

Assistance Centers, City of San Antonio Child Care Services

Administrative Offices, and Financial Empowerment Centers

Stay Connected



Councilman Mike Gallagher | district10@sanantonio.gov | 210.207.7276

I.3 Public Meeting/Hearing Sign-in Sheets

I.3.1 October 2014 Meeting/Hearing

San Antonio Airport System
Public Hearing - October 21, 2014
San Antonio, Texas

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NAME	ADDRESS AND ZIP	PHONE EMAIL ADDRESS
Ray Gabe Resident		
Margaret N. Ortiz Resident		
Cheng + Mark Starinaka Resident		
Edw. A. Zawone Proctor		
Jim Conwell Rep		
Ben Cepelano		
Victor + Jennifer Stephens		
Nancy + Bob Lodes Resident		
Kathleen Noyes + Matt Resident Noyes		

SAT Noise Exposure Map Update and Noise Compatibility Program Revision

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NAME

ADDRESS AND I/F

PHONE _____
E-MAIL ADDRESS _____

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NAME

ADDRESS AND ZIP

PHONE
EMAIL ADDRESS

**APPENDIX I
PUBLIC PARTICIPATION**

**SAT Noise Exposure Map Update and
Noise Compatibility Program Revision**

San Antonio Airport System
Public Hearing - October 21, 2014
San Antonio, Texas

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NAME	ADDRESS AND ZIP	PHONE EMAIL ADDRESS
Melvin Topp		
JAVIER ESPARZA		
Melissa Escamilla		
Vivonne Long		
Sheryl Jalnos		
Scott & Helen Nelson		
Ray Bruce		
Martha Garcia		
FREDDIE J. SATCHER		
Anne Ledex		

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Public Hearing - October 21, 2014
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NAME	ADDRESS AND ZIP	PHONE EMAIL ADDRESS
BIANCA MALDONADO		
Monticello Park, N.A.		
Abigail Antuna		
EVJCA Bd member		
Necati Alkas		
David Della-Rovere		
Drake & Stacy London		
McCallister Henrietta		
Linda K Howard		
Juoz Hunt		
Brian McLaughlin		
Jim Avenell		
Gina Licata Adams		
Forrest Welmaker		

**APPENDIX I
PUBLIC PARTICIPATION**

**SAT Noise Exposure Map Update and
Noise Compatibility Program Revision**

San Antonio Airport System
Public Hearing - October 21, 2014
San Antonio, Texas

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NAME
DAVID W. HARRIS
Laura Vasquez Ximenes + Assoc.
Patricia Green
KodeCourt Reporters
Henry Beck
Fred Fuentes
Resident of Hunter Mill
Shannon Smith
Hunter Mill Resident
John Willroot
Ernie Henry
Simow Express
Becky Thomas

ADDRESS AND ZIP

PHONE
EMAIL ADDRESS

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Public Hearing - October 21, 2014
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NAME
Courtney + Keith Morbe
Paul Jimenez
City Council District 13
Robert Sallu
Aviation Staff
Aviation Staff
Aviation Staff
Ken Thomas
JAMES L. JACOBS
MARIA
Laura Puente
Alberto Puente
Terry Schott

ADDRESS AND ZIP

PHONE
EMAIL ADDRESS

**APPENDIX I
PUBLIC PARTICIPATION**

**SAT Noise Exposure Map Update and
Noise Compatibility Program Revision**

San Antonio Airport System
Public Hearing - October 21, 2014
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NAME	ADDRESS AND ZIP	PHONE EMAIL ADDRESS
Fernando & Rosa Turpin		
Robert O'Connor		
Kyle Miller		
Kristen Raaberg		
Greg Raaberg		
Eric Stephens		
STEVE HATLEY		
Don & Shirley Pope		
Adrian Trevino		
Casa District 7 Convention Palace		
AI Seifert		

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Public Hearing - October 21, 2014
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NAME	ADDRESS AND ZIP	PHONE EMAIL ADDRESS
Harriet R. Driggers		
Roland E. Driggers		
MARK C BRAUE		
Amber Gloseck		
Steve Hawthorne		
Ella Smolka		
DENNIS & JANET MORGEE		
Jeanne & Pat Talley		
MIKE & KIM BIEHL		
Margaret McCann		
Chris & B.J. Hammel		
Richard Sevier		
Del Skinner		
Ashley Seifert		
David Williams		

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PUBLIC PARTICIPATION**

**SAT Noise Exposure Map Update and
Noise Compatibility Program Revision**

San Antonio Airport System
Public Hearing - October 21, 2014
San Antonio, Texas

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NAME	ADDRESS AND ZIP	PHONE EMAIL ADDRESS
Hortense A. Patterson		
PAULA WILLIAMS		
DOYLE HAGSE		
VISTA DEL MONTE		
CINDY GOODGION		
SAMUEL Reile		
LINDA DRAPER		
LARRY		
DONALD E. VEDLIKA		
DAT CARPSON		
Robert Buchhorn		
Kim Gliszinski		
diana ennuver		
Amu		
Beverly Adkins		
Emily Peoples		
Jack Ridenour		

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Public Hearing - October 21, 2014
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NAME	ADDRESS AND ZIP	PHONE EMAIL ADDRESS
DEVEREAUX TEMPLE		
TERESA Tuma		
GEORGE CUNNINGHAM		
DOROTHY FAUL		
GRAY Roy		
ERCHARTED Village T/Condo #		
Carrie Edelman Avenue		
Ed Gonzales		
Ed Gonzales		
William Richard		
Letricia Ybarra		
DOUGLAS & TERESA GARCIA		

**APPENDIX I
PUBLIC PARTICIPATION**

**SAT Noise Exposure Map Update and
Noise Compatibility Program Revision**



San Antonio Airport System
Public Hearing - October 21, 2014
San Antonio, Texas

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NAME

ADDRESS AND ZIP

PHONE
EMAIL ADDRESS

GANA, TIM
ORTIZ, John
HELEN Rios
Hallie Gibbons
JEFF SCOTT
ALFRED GUTIERREZ
Santiago Garcia
JOE PENALOZA
TESS Penaloza
David B. Lee
P. Lauren Moya
MARIA ^{LOPEZ} Andrea Swanson
MARK ^{MARIA} + Andrea Swanson
CONNIE JENKINS
Elizabeth Heath Royal
CHIP HARPIN
Teremiah Kested
Serena Kested

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Public Hearing - October 21, 2014
San Antonio, Texas

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NAME

ADDRESS AND ZIP

PHONE
EMAIL ADDRESS

Doug and Jan Barnes
Resident
Mark Rodriguez
Resident
Amy Alwood
Resident
Jose R. Galvez
Resident
James and Katie Vachlo
Resident
Paula Stanley
Resident

**APPENDIX I
PUBLIC PARTICIPATION**

**SAT Noise Exposure Map Update and
Noise Compatibility Program Revision**

(Handwritten mark)

**San Antonio Airport System
Public Hearing - October 21, 2014
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NAME	ADDRESS AND ZIP	PHONE EMAIL ADDRESS
Les and Linda Redden		
Pedro & Susan Lugo		
Kristin Strawn		
Susan Brewer		
REYNALDO ENRIQUETA		
Cheryl Wallek		
DAVE BROWN		
RESIDENT		
Julia, Nabor + Gabe Cano		
Resident		
John and Lori Cox		
Resident		
MICHAEL MCARDLE		
RESIDENT		
Jennifer + Larry Schroeder		
Resident		

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Public Hearing - October 21, 2014
San Antonio, Texas**

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NAME	ADDRESS AND ZIP	PHONE EMAIL ADDRESS
David White		
residents		
JACK L. VAN WINKLE		
RESIDENT		
GEORGE & MONA GETMAN		
RESIDENT		
JOHN R. VALENTINE		
Laurel Allenstein		
resident		
Paul B. Reid		
SAMUEL B. MOORE (Resident)		
EARLENE MOORE "		
Robert C. Moore		
Resident		
JOE CONNELLY		
RESIDENT		

**APPENDIX I
PUBLIC PARTICIPATION**

**SAT Noise Exposure Map Update and
Noise Compatibility Program Revision**

San Antonio Airport System
Public Hearing - October 21, 2014
San Antonio, Texas

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NAME
Kimmarie Donahue
Joe Donahue
Jason Hall
Sherry Gomez
Yolanda Hotman
Ximenes & Assoc.
H. NORMAN ABRAMSON
CONSULTANT (Adv. Comm)
ROSALIE RUX
HOMEOWNER
JIM PRENDERGAST
HUNTER'S MILL HOME OWN ASSO
Leslie King
ORGANIZATION/COMMUNITY
HAROLD MARRIS
ORGANIZATION/COMMUNITY
DAVID SANDOVAL
HUNTER'S MILL HOMEOWNER

ADDRESS AND ZIP

PHONE
EMAIL ADDRESS

San Antonio Airport System
Public Hearing - October 21, 2014
San Antonio, Texas

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NAME
Karen Funk
Elizabeth Olson
Jim Olson
ALAN CONNOR
Jay Grogg
Carole Grogg
Gafer Cortez
Clarita Cortez
Rm. Dominguez
GREG Dominguez
RALPH FRITZ

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EMAIL ADDRESS

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PUBLIC PARTICIPATION**

**SAT Noise Exposure Map Update and
Noise Compatibility Program Revision**

San Antonio Airport System
Public Hearing - October 21, 2014
San Antonio, Texas

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NAME	ADDRESS AND ZIP	PHONE EMAIL ADDRESS
Lisa McLaughlin Residence		
* Martha Torres Resident		
CHAD PORTER RESIDENT		
JAN ARCHER Resident		
Josh Loden Resident		
Seymour Palans Resident		
Julia Sepeda Resident		
William T. Kites Resident		
EDGAR W. KING Resident		

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Public Hearing - October 21, 2014
San Antonio, Texas

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NAME	ADDRESS AND ZIP	PHONE EMAIL ADDRESS
Rosemary Rodriguez		
Ruby BALLARD Resident		
Jolee Lammons Resident		
Lindsay Boxe Resident		
Sharon Wilson Resident		
Charles Nozue Resident/Shaker Hills Ridge		
WAYNE NOLL Resident		
David Reynosa Resident		
Alice DAVIS Resident		

**APPENDIX I
PUBLIC PARTICIPATION**

**SAT Noise Exposure Map Update and
Noise Compatibility Program Revision**

**San Antonio Airport System
Public Hearing - October 21, 2014
San Antonio, Texas**

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NAME	ADDRESS AND ZIP	PHONE EMAIL ADDRESS
Laura Avena Resident		
Gregory Hilbig Resident		
Wendy Farrar resident		
Linda Hernandez Resident		
Larry S. Hagy Resident		
Terry Ramirez		

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Public Hearing - October 21, 2014
San Antonio, Texas**

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NAME	ADDRESS AND ZIP	PHONE EMAIL ADDRESS
Shawn Black		
Ranya Fik		
KELLY MCNEWMAN, PhD		
DR MIGUEL YBARRA RESIDENT		
Kristin Nelson Resident		
Isaiah's VALERA Resident		
Wendy Miranda Resident		
Martha Grover Resident		
Carol Lynch Resident		

SAT Noise Exposure Map Update and Noise Compatibility Program Revision

San Antonio Airport System
Public Hearing - October 21, 2014
San Antonio, Texas

future

(PLEASE PRINT)	NAME	ADDRESS AND ZIP	PHONE EMAIL ADDRESS
	Lee & Diane Losey		
	Residents		
	Brent Coleman		
	resident		
	Stephanie Mayo		
	Resident		
	Giana Sacca		
	Resident		

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Public Hearing - October 21, 2014
San Antonio, Texas

future

(PLEASE PRINT)	NAME	ADDRESS AND ZIP	PHONE EMAIL ADDRESS
	Mary Reblebo		
	Sandra M. Ke		
	Terrazas		
	Debra Jambers		
	Res		
	Esmeralda Hinojosa		
	Randal Mowery		

SAT Noise Exposure Map Update and Noise Compatibility Program Revision

**APPENDIX I
PUBLIC PARTICIPATION**

**SAT Noise Exposure Map Update and
Noise Compatibility Program Revision**

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San Antonio Airport System
Public Hearing - October 21, 2014
San Antonio, Texas

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NAME	ADDRESS AND ZIP	PHONE EMAIL ADDRESS
Bill + Melinda Guillen		
Ned Hodge		
Ralph Staffier		
Edgar Flores		
Miguel Flores		
Darlene Moody		
Traci Royal		
Wendy Lotteringer		
GARY Boyd		
SARA Boyd		
Josh & Courtney Balsam		
George Torres		
Edgar Alvarez		

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NAME	ADDRESS AND ZIP	PHONE EMAIL ADDRESS
Brit & Linda Wylie		
Robert L. Hendricks		
* Doreen M. Hynes		
Glendolyn Alkas		
Jessie Allen		
Joe & Rosalinda Hernandez		
Artis & Susan Jungman		
Robert & Steve Gabriel		
LAURENCE COLEMAN		
Enrique NAVEIRO		
Bill & Barbara Carr		
EMMA THOMAS		
Santiago Garcia		
Steven Rouse & Lindsay Rouse		
Stephen Wilson		
KEVIN WEISER		
CHARLES ROMERO		
TIM HENCIR		

Name	EMAIL ADDRESS
Shannon Smith	

Danny Chale
SAC Chamber of Commerce
Aline Gabriel / Gogi
A ORGANIZATION/COMMUNITY
Andres Festa
NAME
ORGANIZATION/COMMUNITY
Feri Swartz
ORGANIZATION/COMMUNITY
Shirley Basham
ORGANIZATION/COMMUNITY
Eddie Anne MORRIS
ORGANIZATION/COMMUNITY
Laura Sandoval
ORGANIZATION/COMMUNITY
BEATRICE QUINTERO - ERFURTH
ORGANIZATION/COMMUNITY
Richard Garcia
NAME
ORGANIZATION/COMMUNITY

**APPENDIX I
PUBLIC PARTICIPATION**

**SAT Noise Exposure Map Update and
Noise Compatibility Program Revision**

San Antonio Airport System
Public Hearing - November 10, 2014
San Antonio, Texas

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NAME	ADDRESS AND ZIP	PHONE EMAIL ADDRESS
Gilbert M. Dora G. Cortez		
Dora G. Cortez		
Deany Danna		
LINDA PARKER		
Lauren Parker		
Virginia Barr		
Jeannie Koreda		
Jesus Sandoval		
BRIAN LOPEZ-ROSA		
SUBVISED SPACE		
Dan Weidner		
Ed TREVINO		
"MARTA"		

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Public Hearing - November 10, 2014
San Antonio, Texas

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NAME	ADDRESS AND ZIP	PHONE EMAIL ADDRESS
ROLAND O. HERNANDEZ		
LARA HERNANDEZ		
Carlos Zaldivar		
The Oaks Condominiums		
Julia Hummel		
Churchill Forest		
CHURCHILL FOREST		
RICHARD CANTELLA		
Patricia Barrett		
Deborah Lorander		
Church Hill Forest		
DAVID DELEON		
LAMAR DELOS		
Franklin Miranda		
Franklin Miranda		

**APPENDIX I
PUBLIC PARTICIPATION**

**SAT Noise Exposure Map Update and
Noise Compatibility Program Revision**

San Antonio Airport System
Public Hearing - November 10, 2014
San Antonio, Texas

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NAME	ADDRESS AND ZIP	PHONE EMAIL ADDRESS
<i>Guadalupe Martinez</i> ORGANIZATION/COMMUNITY		
<i>Veronica Chavez</i> ORGANIZATION/COMMUNITY		
<i>Anneliz Miranda</i> ORGANIZATION/COMMUNITY		
<i>MARIA U GUTIERREZ</i> ORGANIZATION/COMMUNITY		
NAME ORGANIZATION/COMMUNITY		
NAME ORGANIZATION/COMMUNITY		
NAME ORGANIZATION/COMMUNITY		
NAME ORGANIZATION/COMMUNITY		
NAME ORGANIZATION/COMMUNITY		
NAME ORGANIZATION/COMMUNITY		
NAME ORGANIZATION/COMMUNITY		
NAME ORGANIZATION/COMMUNITY		

San Antonio Airport System
Public Hearing - November 10, 2014
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NAME	ADDRESS AND ZIP	PHONE EMAIL ADDRESS
<i>Amadeo Villarreal</i> ORGANIZATION/COMMUNITY		
NAME ORGANIZATION/COMMUNITY		
NAME ORGANIZATION/COMMUNITY		
NAME ORGANIZATION/COMMUNITY		
NAME ORGANIZATION/COMMUNITY		
NAME ORGANIZATION/COMMUNITY		
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NAME ORGANIZATION/COMMUNITY		
NAME ORGANIZATION/COMMUNITY		

**APPENDIX I
PUBLIC PARTICIPATION**

**SAT Noise Exposure Map Update and
Noise Compatibility Program Revision**

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Public Hearing - November 10, 2014
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NAME	ADDRESS AND ZIP	PHONE EMAIL ADDRESS
DONNA VAUGHAN		
Denise Pirtle		
Denise Pirtle		
Joseph Morgan		
Sivone Khantarooh		
Tim Allums		
Churchill Forest HOA		
William R. WALDEAL		

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ELIZABETH SWANSON		
Sheila Clemmer		
MARK SOBOTKA		
Fred Curran		
Josh Loden		
Marion Brammell		
Jim Doley		
GUSTAVO DOLEY		

**APPENDIX I
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**SAT Noise Exposure Map Update and
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Public Hearing - November 10, 2014
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Thomas Hagan		
ORGANIZATION/COMMUNITY		
Sam J. McNulty		
ORGANIZATION/COMMUNITY		
Ann A. Coston		
ORGANIZATION/COMMUNITY		
Monica Hendricks		
ORGANIZATION/COMMUNITY		
Teresa Herrero		
Churchill Forest		
Marc Gardner		
ORGANIZATION/COMMUNITY		
George Corbin		
ORGANIZATION/COMMUNITY		
Sharon A Reed		
ORGANIZATION/COMMUNITY		
Suzanne & Chris George		
ORGANIZATION/COMMUNITY		

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Public Hearing - November 10, 2014
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Greg Schipper		
ORGANIZATION/COMMUNITY		
LAUDRA L. YZAGUIRRE		
ORGANIZATION/COMMUNITY		
Glenthen, Jane		
ORGANIZATION/COMMUNITY		
Delores Hernandez		
ORGANIZATION/COMMUNITY		
Jesus Bugarin		
ORGANIZATION/COMMUNITY		
Nancy Jeffords		
ORGANIZATION/COMMUNITY		
SREEDHARA AKKIBABU		
ORGANIZATION/COMMUNITY		
Dylan V Garza		
ORGANIZATION/COMMUNITY		
Kelly Campsey		
ORGANIZATION/COMMUNITY		

**APPENDIX I
PUBLIC PARTICIPATION**

**SAT Noise Exposure Map Update and
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San Antonio Airport System
Public Hearing - November 10, 2014
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EILEEN SPINATO		
THE HEATHOR COMMUNITY		
Marilyn Towdy		
Blossom Park N.A. COMMUNITY		
Chris Day		
CUDN H.O.A. COMMUNITY		
Alan Falls		
ORGANIZATION/COMMUNITY		
Neida Contreras		
ORGANIZATION/COMMUNITY		
Wanda Ramoz		
ORGANIZATION/COMMUNITY		
Mary Rose Johnson		
STURGEON BANCIT		
Carmen Barrera		
Colleen O'Sullivan COMMUNITY		
Luis-N-Lydia Perez		
ORGANIZATION/COMMUNITY		

①

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Public Hearing - November 10, 2014
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NAME	ADDRESS AND ZIP	PHONE EMAIL ADDRESS
Cynthia Villanueva		
Pauline Gonzalez		
Joe and Delfina Sepulveda		
Joann Wong-Harmon		
ILEANA ESPARZA		
ORGANIZATION/COMMUNITY		
Irma C. Hogan		
ORGANIZATION/COMMUNITY		
Lois Jones		
ORGANIZATION/COMMUNITY		
David Spielmann		
ORGANIZATION/COMMUNITY		
Clenton Crumley		
ORGANIZATION/COMMUNITY		
Angela Manny		
ORGANIZATION/COMMUNITY		
Amy Ritey		
ORGANIZATION/COMMUNITY		

**APPENDIX I
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**SAT Noise Exposure Map Update and
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Public Hearing - November 10, 2014
San Antonio, Texas

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NAME	ADDRESS AND ZIP	PHONE EMAIL ADDRESS
Kristi Caskey		
ELEANOR KAMATARIS		
VDN		
Margaret Pruett		
VDN		
Janice Chase		
VDN		
Rebecca Garcia		
Self		
JAN ARCHER		
Self		
JAMES FRELACK		
HOLY SPIRIT		
Mary Davis		
Greater Harmony Hills		
Michael Davis		
Greater Harmony Hills		

②

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Public Hearing - November 10, 2014
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NAME	ADDRESS AND ZIP	PHONE EMAIL ADDRESS
Robert Miller		
Mark SAMAS		
Isabel Luna		
Pamela Smith		
Vista del Norte SD		
Sheila Cain		
E. Wesley Radwan		
Blas & Mary Helen Enriquez		
George & Shirley Parma		
Lisa & Randy Zamora		

**APPENDIX I
PUBLIC PARTICIPATION**

**SAT Noise Exposure Map Update and
Noise Compatibility Program Revision**

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San Antonio Airport System
Public Hearing - November 10, 2014
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NAME	ADDRESS AND ZIP	PHONE EMAIL ADDRESS
Katherine Parier & Susan Churchill Estates		
Olga CANALES		
A B CORP		
JAMES COLE		
TERRY & Melinda Schott		
LISA SIMNITT		
CHAS OF VISTA DEL NORTE		
Karen Vann		
Michael T. Rodriguez		
Courtney Veras		

✓

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NAME	ADDRESS AND ZIP	PHONE EMAIL ADDRESS
Rebecca Hardy		
Eric V. Scowen		
Keller Williams - Heritage		
MARIO RENDON		
Granada Homes		
JUAN SALDIVAR		
ROBERT G. FRANZ		
BRIAN BENAVIDES		
Brian Benavides		
Robert Kathy Einkaas		
Randi Miller		
Cindy Tushnet		
MARTHA GORVER		

**APPENDIX I
PUBLIC PARTICIPATION**

**SAT Noise Exposure Map Update and
Noise Compatibility Program Revision**

①

San Antonio Airport System
Public Hearing - November 10, 2014
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NAME	ADDRESS AND ZIP	PHONE EMAIL ADDRESS
TERESA DeBORO		
Stone Ridge		
Nationala Martinez		
ORGANIZATION/COMMUNITY		
Lady Villarreal		
ORGANIZATION/COMMUNITY		
David Hoffman		
DAVID HOFFMAN		
ERLA NAUMANN		
ED NAUMANN		
Yolanda Peña		
ORGANIZATION/COMMUNITY		
Art Peña		
ORGANIZATION/COMMUNITY		
EMILIA HEDUND		
JAN HEDUND		
CAROL BARNES		
ORGANIZATION/COMMUNITY		

①

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Public Hearing - November 10, 2014
San Antonio, Texas

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NAME	ADDRESS AND ZIP	PHONE EMAIL ADDRESS
Louis Acosta		
ORGANIZATION/COMMUNITY		
YOLANDA MARTINEZ		
ORGANIZATION/COMMUNITY		
Murphi Jacobson		
ORGANIZATION/COMMUNITY		
John Willrodt		
ORGANIZATION/COMMUNITY		
DAVID BARRERA		
ORGANIZATION/COMMUNITY		
Manlynn O'Sullivan		
ORGANIZATION/COMMUNITY		
Armando Rodriguez		
ORGANIZATION/COMMUNITY		
Mark Runge		
ORGANIZATION/COMMUNITY		
MICHAEL & KATHLENE VALE		
ORGANIZATION/COMMUNITY		

**APPENDIX I
PUBLIC PARTICIPATION**

**SAT Noise Exposure Map Update and
Noise Compatibility Program Revision**

San Antonio Airport System
Public Hearing - November 10, 2014
San Antonio, Texas

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NAME	ADDRESS AND ZIP	PHONE EMAIL ADDRESS
Rosendo NAME MARY		
ORGANIZATION/COMMUNITY		
Charles Nanes		
ORGANIZATION/COMMUNITY		
NINA ? JOE DE LA GARZA		
ORGANIZATION/COMMUNITY		
William R. Garrison		
ORGANIZATION/COMMUNITY		
laurencia		
ORGANIZATION/COMMUNITY		
Justin Dunn		
ORGANIZATION/COMMUNITY		
ROBERT D. LONG		
ORGANIZATION/COMMUNITY		
Clement Bruce Campbell		
ORGANIZATION/COMMUNITY		
Henry Mora		
ORGANIZATION/COMMUNITY		

San Antonio Airport System
Public Hearing - November 10, 2014
San Antonio, Texas

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NAME	ADDRESS AND ZIP	PHONE EMAIL ADDRESS
Todd Greget		
Oak Ridge Village		
Donisha Greget		
Oak Ridge Village		
Rita Morris		
Oak Ridge Subd.		
Mrs. Frankie Williams		
AL WILLIAMS		
IRENE BURNS		
Castle Hills Forest		
Keith Huterka		
ORGANIZATION/COMMUNITY		
Peggy Sue Wilson-Schmuckle		
Longs Creek		
GARY SCHMUCKLE		
ORGANIZATION/COMMUNITY		
Delia Buefroy		
ORGANIZATION/COMMUNITY		

APPENDIX I PUBLIC PARTICIPATION

SAT Noise Exposure Map Update and Noise Compatibility Program Revision

First Name	Last Name	Organization	Address	Zip Code	Phone	Email
Glendolyn	Alkas					
Necati	Alkas					
Edgar	Alvarez	Stone Ridge Subdivision				
Laura	Alvarez	Stone Ridge Subdivision				
✓ Ann	Alwood					
David	Biehl					
Kim	Biehl					
Shawn	Black					
✓ William	Cintron	Stone Ridge				
✓ William Daniel	Cintron (Garcia)	Stone Ridge				
Jim	Connell					
Johnny	Cowan	Stone Ridge HOA				
Ramiro	Davila					
Hilary	Debow	Stone Ridge				
✓ Frank	Di Muccio					
Sabrina	Evans					
Linda	Gaither	Ridgestone Homeowners Assoc.				
Jimmie	Gillum					
✓ David	Gross	Resident Stoneridge Subdivision resident				
✓ Corraine	Guerra					
William	Guillen					
Janice R	Henry	Homeowner				
✓ Esmeralda	Hinojosa					
Lori	Horstmann					
✓ Gerald	Lenhart					
✓ Angie	Lex					
Carole	Linton	Stoneridge Subdivision Vista del Norte Homeowner				
Josh	Loden					
✓ Dafne	Lopez					
✓ Susan	Lopez					

Domingo	Marmolejo	Enchanted Village Townhouse Condominium Association				
Enrique	Martinez					
Richard	McBroom	Stoneridge Resident				
Sandy	Mciver					
Gladys	McLeod					
Gordon	McLeod					
✓ Wendy	✓ Miranda					
Earnestine	Moore					
Sam	Moore					
Samuel	Moore					
Chad	Nall	Suburban Spaces				
Sharon	Niesen					
Paul	Nixon					
Salvador	Olivera					
Greg	Raaberg	Vista Del Norte HOA				
Kristen	Raaberg	Vista Del Norte HOA				
William	Richard					
Isabel	Rojas	Stone Ridge				
Jeff	Scott	Gordon Scott & Son				
Del	Skinner					
Aaron	Stackpole					
Michael	Stewart					
David	Strauss					
Jen	Tomes					
Isaias	Valera					
✓ Stanley	Waghalter	Jefferson Neighborhood Association				
Cheryl	Wallek					
Gloria F.	Ward	Stoneridge Townhome Condo HOA Board				
Laura Elizabeth	Welch					
Joy	Westlake					
Cindy	Willis	Stone Ridge				
Dugoshe@aol.com						

APPENDIX I PUBLIC PARTICIPATION

SAT Noise Exposure Map Update and Noise Compatibility Program Revision

First Name	Last Name	Organization	Address	Zip Code	Phone	Email
✓ Glendolyn	Alkas					
Necati	Alkas					
Edgar	Alvarez	Stone Ridge Subdivision				
Laura	Alvarez	Stone Ridge Subdivision				
Ann	Alwood					
David	Biehl					
Kim	Biehl					
✓ Shawn	Black					
William	Cintron	Stone Ridge				
William	Cintron (Garcia)	Stone Ridge				
Jim	Connell					
Johnny	Cowan	Stone Ridge HOA				
Ramiro	Davila					
✓ Hilary	Debow	Stone Ridge				
Frank	Di Muccio					
Sabrina	Evans					
✓ Linda	Gaither	Ridgestone Homeowners Assoc.				
Jimmie	Gillum					
David	Gross	Resident				
		Stoneridge Subdivision resident				
Lorraine	Guerra					
✓ William	Guillen					
Janice R	Henry	Homeowner				
Esmeralda	Hinojosa					
Lori	Horstmann					
Gerald	Lenhard					
Angie	Lex					
✓ Carole	Linton	Stoneridge Subdivision				
		Vista del Norte				
		Homeowner				
Josh	Loden					
Dafne	Lopez					
Susan	Lopez					

		Enchanted Village Townhouse Condominium Association				
✓ Domingo	Marmolejo					
Enrique	Martinez					
Richard	McBroom	Stoneridge				
✓ Sandy	McIver	Resident				
✓ Gladys	McLeod					
✓ Gordon	McLeod					
Wendy	Miranda					
Earnestine	Moore					
Sam	Moore					
Samuel	Moore					
Chad	Nall	Suburban Spaces				
✓ Sharon	Niesen					
Paul	Nixon					
Salvador	Olvera					
Greg	Raaberg	Vista Del Norte HOA				
Kristen	Raaberg	Vista Del Norte HOA				
William	Richard					
Isabel	Rojas	Stone Ridge				
Jeff	Scott	Gordon Scott & Son				
Del	Skinner					
Aaron	Stackpole					
Michael	Stewart					
✓ David	Strauss					
Jen	Tomes					
Isaias	Valera					
Stanley	Waghalter	Jefferson Neighborhood Association				
✓ Cheryl	Wallek					
Gloria F.	Ward	Stoneridge Townhome				
Laura Elizabeth	Welch	Condo HOA Board				
Joy	Westlake					
✓ Cindy	Willis	Stone Ridge				
Dugoshe@aol.com						

I.4 Handout(s)

Handout materials for the October and November meetings were identical, except for the meeting date identified and the comment closing date, which was extended.



San Antonio International Airport
City of San Antonio
Aviation Department

Agenda
October 21, 2014
Holiday Inn- Prairie Mesa Room
77 NE Loop 410
6:00 PM

5:30 PM Doors Open and Registration

6:00 PM Open House – Q&A stations (ongoing)

6:30 PM Presentation of NEM update and proposed NCP revision

7:00 PM Public Hearing

The NEM update documentation and the proposed changes to the two Noise Compatibility Program measures are available for review at
<http://sanantonio.gov/Aviation/EnvironmentalStewardship/Noise.aspx>.

For more information, contact
SAAS Environmental Stewardship Manager Steven Southers at 210-207-3402
or
Steven.Southers@sanantonio.gov or <mailto:Steven.Southers@sanantonio.gov>.



Aeropuerto Internacional de San Antonio
Municipio de San Antonio
Departamento de Aviación

Agenda
21, de octubre de 2014
Holiday Inn- Salón Prairie Mesa
77 Loop 410 Noreste
6:00 PM

5:30 PM Abrir las puertas y Registración

6:00 PM Exhibición Abierta al Público – Preguntas y Respuestas
(continuo)

6:30 PM Presentación de la actualización del NEM y Revisiones
Propuestas al NCP

7:00 PM Audiencia Pública

La documentación de la actualización del NEM y los cambios propuestos a las
medidas del Programa de Compatibilidad con el Ruido están disponibles
para reviso en

<http://sanantonio.gov/Aviation/EnvironmentalStewardship/Noise.aspx>.

Para más información comuníquese con el Gerente de Administración del Medio
Ambiente, Steven Southers al 210-207-3402

o

Steven.Southers@sanantonio.gov <<mailto:Steven.Southers@sanantonio.gov>>.



**San Antonio International Airport
Part 150 Study Update
Comment Sheet**

**Open House and Public Hearing
October 21, 2014
Holiday Inn Airport- Prairie Mesa Room**

Thank you for attending this open house and public hearing. Please fill out the information requested below and give us your written comments on the Noise Exposure Map (NEM) update or other comments related to the presentation about the Part 150 Study Update. You may submit verbal comments with the court reporter this evening if you prefer. Any comments submitted on this comment sheet or with the court reporter will be included in the public record of this hearing.

Name _____

Address _____ City _____ Zip _____

Phone (optional) _____ Email (optional) _____

Comments:

You may also submit written comments to: Steven Southers, Environmental Stewardship Manager, by fax at 210/207-3544 or by email at Steven.Southers@sanantonio.gov. Information is available on the website <http://sanantonio.gov/aviation/environmental-stewardship/noise.aspx>. **The deadline to submit comments is 5:00 pm, Thursday, October 23, 2014.**

-Para español, voltee la hoja.-



**Aeropuerto Internacional de San Antonio
Estudio para Actualizar Parte 150
Hoja para Comentarios**

**Exhibición Abierta al Público y
Audiencia Pública
21 de octubre de 2014
Holiday Inn Aeropuerto- Salón Prairie Mesa**

Gracias por asistir a esta exhibición abierta al público y audiencia pública. Favor de completar la información que se le pide a continuación y proveer sus comentarios por escrito respecto a la actualización del Mapa de Exposición al Ruido (NEM por su sigla en inglés) o cualquier otro comentario respecto a la presentación sobre el Estudio para Actualizar el Parte 150. Ud. puede someter comentarios verbales con el reportero judicial esta noche si prefiere. Cualquier comentario sometido usando esta hoja o con el reportero judicial estará incluido en el registro público de esta audiencia pública.

Nombre _____

Dirección _____ Ciudad _____ Código Postal _____

Teléfono (opcional) _____ Email (opcional) _____

Comentarios:

Ud. puede entregar sus comentarios por escrito a: Steven Southers, Gerente para Administración del Medio Ambiente, por fax al 210/207-3544 ó por correo electrónico a Steven.Southers@sanantonio.gov. Información esta disponible en el sitio web en <http://sanantonio.gov/aviation/environmental-stewardship/noise.aspx>. **La fecha limite para someter comentarios es a las 5:00 pm, jueves, 23 de octubre de 2014.**

-For English, see the other side.-



SPEAKER SIGN-UP CARD
Airport Noise Exposure Map Update
14 CFR Part 150
Public Hearing
October 21, 2014

Instructions: If you wish to speak for the record at the public hearing, please complete this card and return it to the speaker registration table before it is time for you to speak.

Name (print): _____

Address with zip (print): _____

Representing (optional): _____

Each speaker will be limited to 2 minutes and there is no transferring of time to others.



HOJA PARA REGISTRARSE COMO ORADOR
Actualización del Mapa de Exposición al Ruido del Aeropuerto
14 CFR Parte 150
Audiencia Pública
21 de octubre de 2014

Instrucciones: Si usted desea expresarse para el registro oficial de la audiencia pública, favor de completar esta hoja y entregarla en la mesa de inscripción para oradores antes de la hora que le toca para ser orador.

Nombre (letra de molde): _____

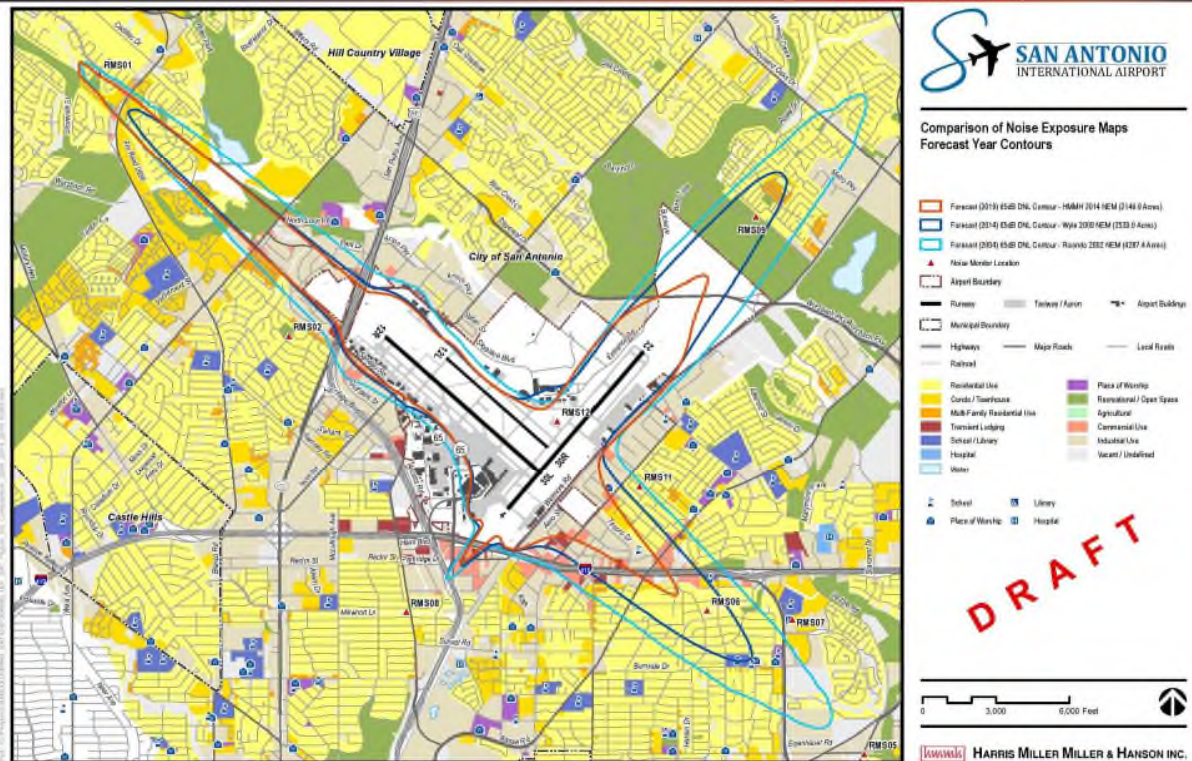
Dirección con su zona postal (letra de molde): _____

Representando (opcional): _____

Cada orador tendrá 2 minutos para expresarse y no se puede transferir su tiempo a otra persona.

Comparison to Previous NEM Updates Forecast Years in the 2002, 2009 and 2014 NEM Updates

www.hmmh.com



I.5 Presentation and Boards

The presentation and boards presented at the October and November meetings were identical, except for the meeting date and the comment closing date, which was extended. The presentation and boards that were presented and available at the public meetings are shown below in both English and Spanish.

I.5.1 English

www.hmmh.com

Noise Exposure Map Update Noise Compatibility Program Revision San Antonio International Airport



October 21, 2014

Agenda

www.hmmh.com

- What is a Noise Exposure Map?
- Airport Noise Terminology
- Updated SAT Noise Exposure Map
- History of Noise Compatibility Program at SAT
- Noise Reduction Achieved at SAT
- Noise Compatibility Program Revision
- Project Schedule
- Public Comments

2



What is a Noise Exposure Map?

www.hmmh.com

- Code of Federal Regulations (14 CFR) Part 150, “Airport Noise Compatibility Planning”
 - Voluntary federal program
 - Over 250 airports have participated
 - Sets national standards for analysis
 - Provides access to federal funding
 - Aids in obtaining FAA implementation assistance
- Two principal technical elements
 - Noise Exposure Map (NEM)
 - Noise Compatibility Program (NCP)

3



What is a Noise Exposure Map?

www.hmmh.com

- **The NEM describe:**
 - Airport layout and operation
 - Aircraft related noise exposure
 - Land uses in the airport environs
 - Noise/land use compatibility situation
- **NEM must provide information for two timeframes**
 - Year of submission (2014)
 - Five-year forecast (2019)
- **Annual noise exposure depicted using “contours”**

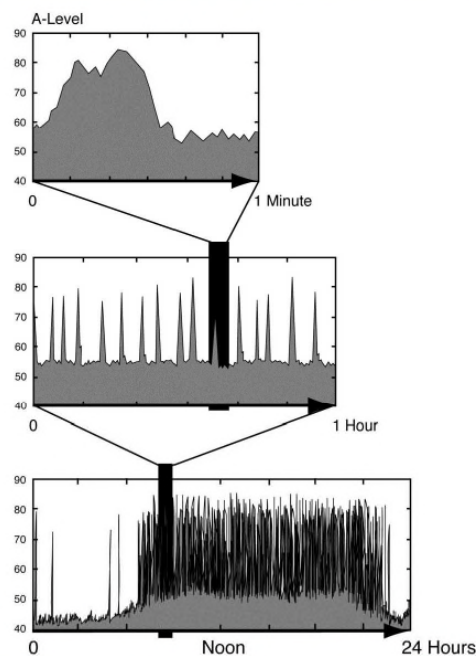
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Airport Noise Terminology

www.hmmh.com

- **Noise – “unwanted sound”**
- **The decibel, dB**
- **A-weighted decibel**
- **Maximum A-weighted sound level, Lmax**
- **Sound Exposure Level, SEL**
- **Day-Night Average Sound Level, DNL**



5

Updated SAT Noise Exposure Map Process

www.hmmh.com

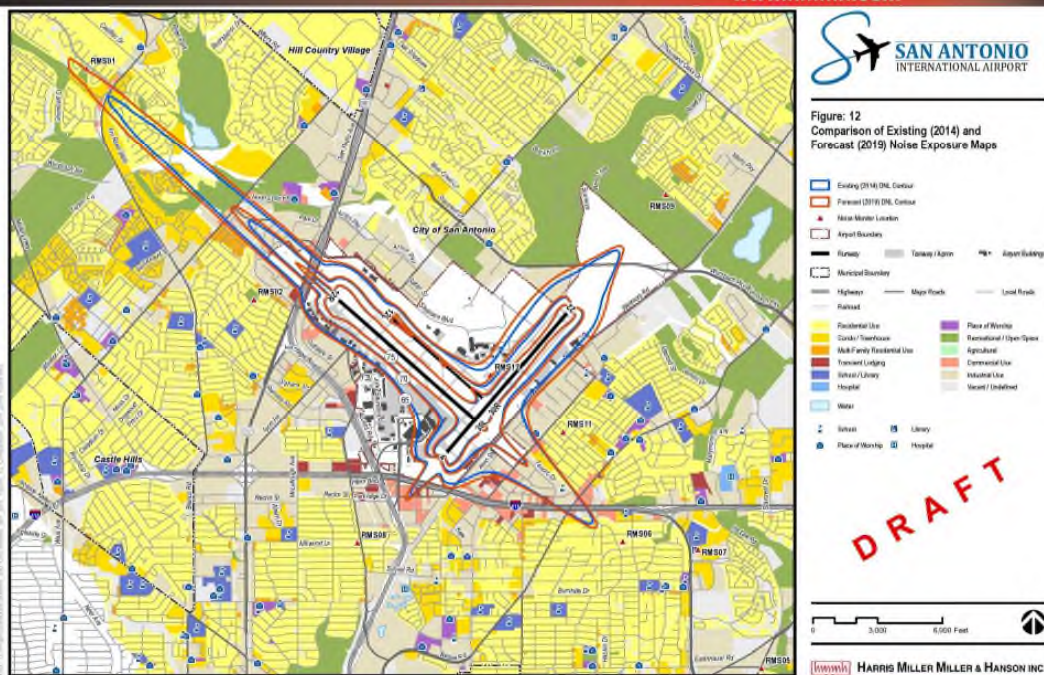
- Reviewed existing Noise Compatibility Program
- Processed aircraft flight track and identification data
- Used the FAA's Terminal Area Forecast (TAF)
- Compared historical permanent noise monitor measurement data to modeled results
- Obtained FAA approval for aircraft substitutions
- Produced existing and future noise exposure contours using the FAA approved noise model
 - Integrated Noise Model (INM) Version 7.0d



6

Updated SAT Noise Exposure Map Results: 2014 and 2019 Noise Contours

www.hmmh.com



Updated SAT Noise Exposure Map

Results: Measured Noise Compares Well

www.hmmh.com

Contour Area	Noise Monitor	Measured 5-year Average DNL	Measured 2013 DNL	Modeled 2014 DNL	Difference
Northwest	RMS01	63.0 dB	62.8 dB	63.7 dB	w/in 1 dB
Southeast	RMS06	64.2 dB	63.6 dB	63.5 dB	w/in 1 dB
Northeast	RMS09	61.5 dB	60.1 dB	62.7 dB	1-2 dB high
Southwest	RMS08	56.1 dB	53.2 dB	59.7 dB	3-6 dB high

Summary

- Very good agreement between measured and modeled annual-average DNL for the Runway 12/30 complex
- Conservatively high modeled annual-average DNL for Runway 4/22 complex

8



History of Noise Compatibility Program at SAT

What is a Noise Compatibility Program?

www.hmmh.com

- The NCP describes measures for implementation to improve compatibility of aircraft noise and land uses within the airport environs
- NCP reviews previous measures and provides analysis for new measures
- The NCP documentation includes
 - Development of the program
 - Description of all measures
 - Reasons for accepting/rejecting each measure
 - Implementation status and funding of each measure

9



History of Noise Compatibility Program at SAT Summary

www.hmmh.com

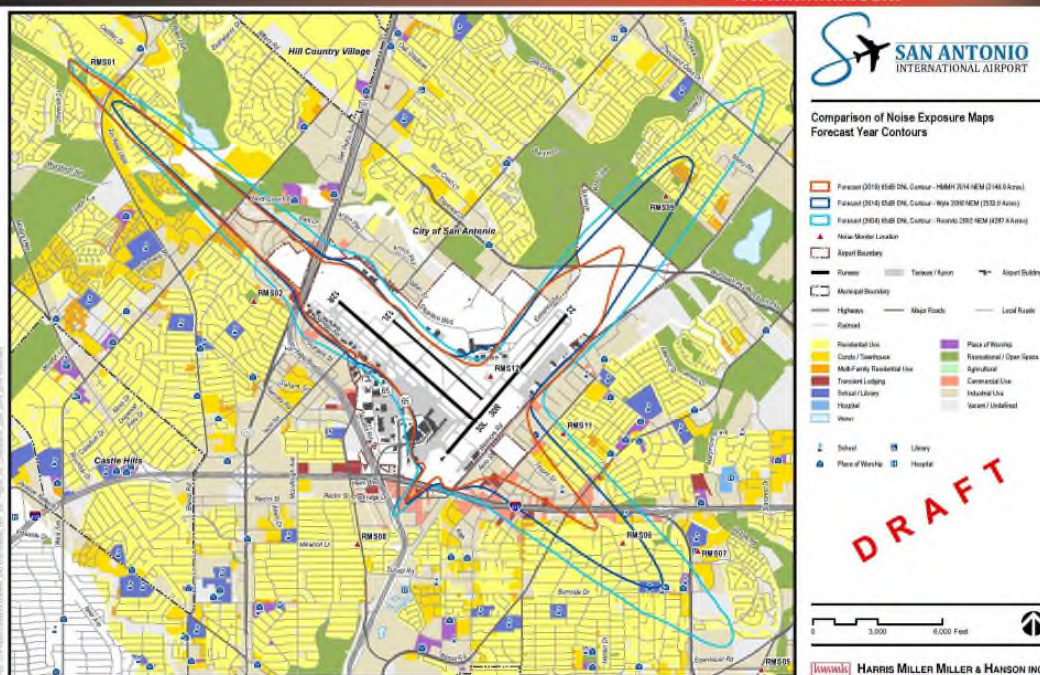
- Chapter 2 of the NEM provides the NCP history, which in summary includes:
 - 11 measures recommended in the original NCP in 1990
 - FAA approved all 11 measures
 - Amendment to modify two NCP measures in 1996
 - FAA approved amendment
 - 11 noise abatement measures and 4 noise mitigation measures recommended in the full NCP update in 2001
 - FAA approved 4 of the 11 noise abatement measures and all 4 noise mitigation measures
 - Amendment to update the NEM year for two noise mitigation measures in 2009
 - FAA approved amendment



10

Noise Reduction Achieved at SAT 2004, 2009 and 2014 NEM Update Results

www.hmmh.com

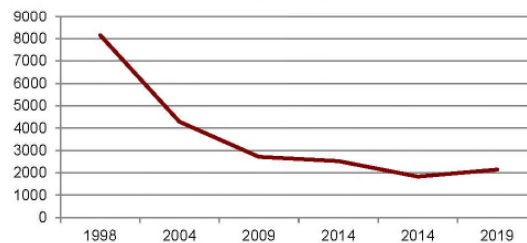


Noise Reduction Achieved at SAT *Smaller Area of Incompatible Land Uses*

www.hmmh.com

- Aircraft noise exposure continues to decrease at SAT
 - The City uses the 65 dB DNL contour for land use guidelines and eligibility for noise mitigation measures
 - “the noise contour”
 - Since 1998, the noise contour has decreased in size (acres) by 75%

65 dB DNL Contour Size in Acres

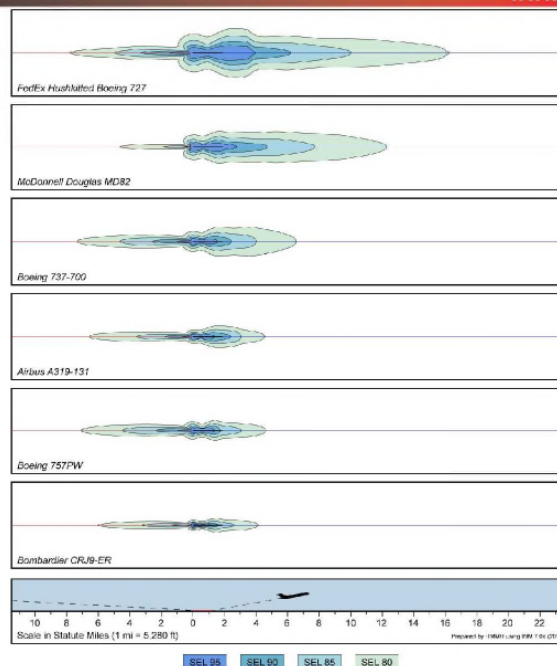


12



Noise Reduction Achieved at SAT *Reasons for Reduction – Quieter Aircraft*

www.hmmh.com



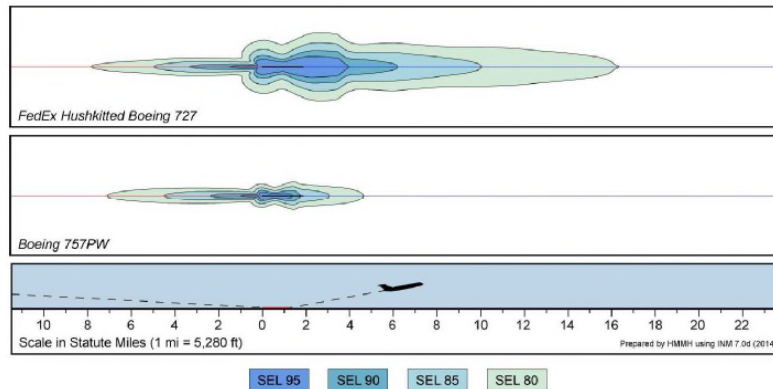
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Noise Reduction Achieved at SAT Reasons for Reduction – Quieter Aircraft

www.hmmh.com

- Quieter aircraft fleet is the predominant catalyst
 - The most recent change at SAT is the FedEx retirement of their Boeing 727 aircraft with a much quieter Boeing 757



14

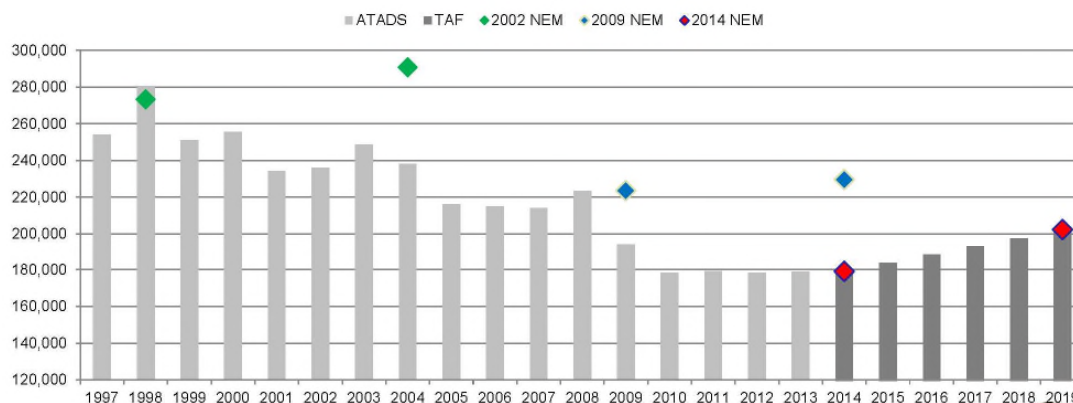


Noise Reduction Achieved at SAT Reasons for Reduction – Fewer Operations

www.hmmh.com

- Aircraft operations have declined at SAT
 - Over 30% reduction since 1998

SAT Annual Aircraft Operations 1997 - 2019



15



Noise Reduction Achieved at SAT ***Reasons for Reduction – NCP Implementation***

www.hmmh.com

- Encouraged operators to use quieter aircraft and promoted the retirement of noisier Stage 2 aircraft
- 2001 – Tested noise abatement departure procedures
- 2002 – Installation and successful implementation of the GRE operation plan
- 2010 – Final installation of the noise and operations monitoring system (NOMS)
- 2013 – Extension of Runway 4/22

16



Noise Compatibility Program Revision ***Current NCP Noise Abatement Measures***

www.hmmh.com

- **NA-1: Conduct live tests of noise abatement departure profiles**
 - FAA disapproved, SAAS completed in 2001
 - No revision proposed
- **NA-2: Pursue additional voluntary noise abatement procedures to further reduce noise levels of aircraft operations**
 - FAA approved
 - No revision proposed
- **NA-3: Establish a preferential runway use program and enhance its effectiveness by extending existing runways**
 - FAA disapproved, partially implemented in 2013
 - No revision proposed

17



Noise Compatibility Program Revision *Current NCP Noise Abatement Measures*

www.hmmh.com

- **NA-4:** For departures from Runway 3, establish a departure corridor that places aircraft over compatible land uses east of Wetmore Road to the extent possible
 - FAA disapproved
 - No revision proposed
- **NA-5:** For those times that Runway 21 must be used for departure, establish a departure corridor that places aircraft over the Highway 281 corridor to the extent possible
 - FAA disapproved
 - No revision proposed
- **NA-6:** Incorporate the findings and recommendations of the engine run-up study into the FAR Part 150 Noise Compatibility Program (NCP)
 - FAA approved, City completed in 2002
 - No revision proposed



18

Noise Compatibility Program Revision *Current NCP Noise Abatement Measures*

www.hmmh.com

- **NA-7:** Install an aircraft noise and operations monitoring system to track the use of departure corridors and departure profiles
 - FAA approved, City completed installation in 2010
 - No revision proposed
- **NA-8:** Enhance pilot awareness of noise-sensitive areas and noise abatement procedures by providing information for Jeppesen charts, airline pilot manuals, and fixed base operator information
 - FAA approved, City instituted a pilot awareness program
 - No revision proposed
- **NA-9:** Investigate the use of noise barriers along Airport boundaries at runway ends to reduce the effects of takeoff roll noise
 - FAA disapproved
 - No revision proposed



19

Noise Compatibility Program Revision *Current NCP Noise Abatement Measures*

www.hmmh.com

- **NA-10: Encourage Congress to seek stricter aircraft noise standards, particularly regarding a phase-out schedule for aircraft originally manufactured as Stage 2 that have been modified or are operated to meet Stage 3 noise standards**
 - FAA disapproved, measure partially completed through aircraft retirements
 - No revision proposed
- **NA-11: Encourage the FAA to develop a phase-out schedule for FAR Part 36 Stage 2 aircraft weighing less than 75,000 pounds**
 - FAA disapproved, measure partially completed through Congressional action
 - No revision proposed

20



Noise Compatibility Program Revision *Current NCP Noise Mitigation Measures*

www.hmmh.com

- **NM-1: Continue the Residential Acoustical Treatment Program within the Noise Mitigation Boundary shown in the San Antonio International Airport 2014 Noise Exposure Map (NEM)**
 - FAA approved, City implemented for 1,423 homes and 216 apartment units
 - Revision proposed to remove reliance on particular year of NEM
- **NM-2: Continue to provide acoustical treatment for schools and religious facilities that have not yet received such treatment and are within the Noise Mitigation Boundary shown in the San Antonio International Airport 2014 Noise Exposure Map (NEM)**
 - FAA approved, City implemented for 32 public use facilities
 - Revision proposed to remove reliance on particular year of NEM

21



Noise Compatibility Program Revision *Current NCP Noise Mitigation Measures*

www.hmmh.com

- **NM-3: Study the mechanism for and impact of incorporating noise exposure acknowledgements into real estate transactions**
 - FAA approved, City reviewed process with State requirements
 - No revision proposed
- **NM-4: Study mechanism to maintain compatible land uses in current and proposed flight corridors and to prevent development of additional incompatible noise sensitive land uses in areas exposed to DNL 65 and higher**
 - FAA approved, City implemented in 2010 via the San Antonio International Airport Vicinity Land Use Plan
 - No revision proposed

22



Noise Compatibility Program Revision *Current NCP Program Measures*

www.hmmh.com

- **No program measures included in the current NCP**
- **The original NCP program measures implemented by the City included**
 - **Establishing a noise abatement officer staff position**
 - Currently held by Steven Southers, Environmental Stewardship Manager
 - **Installing a system to perform ongoing noise monitoring**
 - EnvironmentalVue is currently installed and operational
 - Flight track and aircraft identification data
 - 12 fixed noise monitors
 - **Developing a procedure for the investigation and recording of noise complaints**

23



Noise Compatibility Program Revision

Purpose for Revision

www.hmmh.com

- The City expects to continue providing noise mitigation to properties (as federal funding is available) that:
 - Are within the eligibility noise contour (65 dB DNL)
 - Meet all federal eligibility requirements for noise mitigation
- Noise compatibility successes at SAT include:
 - Residential Acoustical Treatment Program
 - 1,423 homes and 216 apartment units
 - Acoustic treatment for schools and religious facilities
 - 10 schools, 19 religious facilities, 1 library and 2 nursing homes
 - San Antonio International Airport Vicinity Land Use Plan
 - Requires the Aviation Department to review and recommend approval/disapproval requests for rezoning within the Airport Awareness Zone

24



Noise Compatibility Program Revision

Purpose for Revision

www.hmmh.com

- 484 noise sensitive parcels exist within the SAT noise contour as provided in the 2019 Noise Exposure Map
 - 205 of those parcels are compatible as they have received sound insulation treatments
 - 47 of those parcels are compatible (not eligible for sound insulation treatment) as they were built after October 1, 1998
 - 232 of those parcels are potentially eligible for noise mitigation through the Residential Acoustical Treatment Program (RATP)

25



Noise Compatibility Program Revision *Proposed Revision to Noise Mitigation Measure 1*

www.hmmh.com

- **Existing measure from 2009 NEM (NM-1):**

Continue the Residential Acoustical Treatment Program within the Noise Mitigation Boundary shown in the San Antonio International Airport 2014 Noise Exposure Map (NEM)

- **Proposed measure in 2014 NEM (NM-1):**

Continue the Residential Acoustical Treatment Program for structures exposed to aircraft noise DNL 65 dB and higher

26



Proposed Noise Compatibility Program Revision *Proposed Revision to Noise Mitigation Measure 2*

www.hmmh.com

- **Existing measure from 2009 NEM (NM-2):**

Continue to provide acoustical treatment for schools and religious facilities that have not yet received such treatment and are within the Noise Mitigation Boundary shown in the San Antonio International Airport 2014 Noise Exposure Map (NEM)

- **Proposed measure in 2014 NEM (NM-2):**

Continue to provide acoustical treatment to noise-sensitive facilities exposed to aircraft noise of DNL 65 dB and higher

27



Project Schedule

www.hmmh.com

Date	Milestone
May 2014	Project commencement
May 2014	Met with airport users, SAAS and FAA ATCT staff
June 2014	Forecast aircraft operations and develop noise model inputs
July 2014	Draft Noise Compatibility Program review chapter
August 2014	Draft aircraft noise exposure contours
August 2014	Draft NEM update document
September - October 2014	30-day public comment period Public NEM Meeting/NCP Hearing
November 2014	Submit final NEM update document to FAA for acceptance



28

Public Comments Requested

www.hmmh.com

- City is seeking public comment for:
 - Noise Exposure Map (NEM) update
 - Noise Compatibility Program (NCP) revision
- Options for submitting public comment include:
 - Court reporter
 - Available to hear your oral comments
 - Comment Cards
 - Located at comment table to take written comments
 - Submit your written comments tonight or mail to:

Ximenes & Associates, Inc.
421 Sixth Street, Suite 1
San Antonio, TX 78215
- Comment period closes October 23, 2014

**Extended to
November 13, 2014**



29

Return to Open House *Get Answers and Submit Comments Please*

www.hmmh.com

▪ Stations available to answer your questions on the
2014 Noise Exposure Map update for
San Antonio International Airport

- | | |
|--|--|
| 1. Noise Exposure Contours
2014 and 2019
Rhea Gundry | 4. Residential Acoustical Treatment
Program (RATP)
Cheryl Chamness |
| 2. NEM Background & Model Input
Bob Behr | 5. Written Comments
Linda Ximenes |
| 3. Noise Compatibility Program
Gene Reindel | 6. Oral Comments
Court Reporter |

Comment period closes October 23, 2014

**Extended to
November 13, 2014**



San Antonio International Airport

City of San Antonio

Noise Exposure Map Update and Noise Compatibility Program Revision 14 CFR Part 150



**Public Meeting and Hearing
October 21, 2014
6:00 pm**

- *Presentation at 6:30 pm*
- *Court reporter available for oral comments*
- *Comment cards available for written comments*
- *Comments due before 5 pm October 23, 2014*

Noise Exposure Map Update Project Schedule

Date	Milestone
May 2014	Project commencement
May 2014	Met with airport users, SAAS and FAA ATCT staff
June 2014	Forecast aircraft operations and develop noise model inputs
July 2014	Draft Noise Compatibility Program review chapter
August 2014	Draft aircraft noise exposure contours
August 2014	Draft NEM update document
September- October 2014	30-day public comment period Public NEM Meeting/NCP Hearing
November 2014	Submit final NEM update document to FAA for acceptance



San Antonio International Airport
City of San Antonio

Noise Exposure Map Update Background – 14 CFR Part 150

- **Voluntary program – FAA sponsored**
- **Sets standards for noise analyses**
- **Over 250 airports have participated**
- **Provides access to federal funds for:**
 - **Noise abatement, e.g.:**
 - Ground Run-up Enclosures (GRE)
 - Noise Abatement Departure Procedures (NADP)
 - **Noise mitigation, e.g.:**
 - Residential sound insulation
 - Land acquisition
- **Two principal elements:**
 - **Noise Exposure Map (NEM)**
 - Existing (2014) and future (2019)
 - **Noise Compatibility Program (NCP)**
 - Proposed Revision

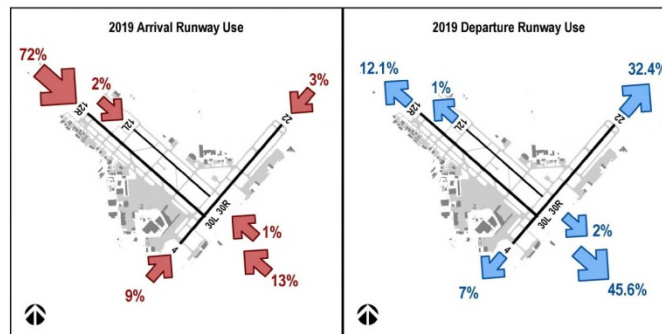


San Antonio International Airport
City of San Antonio

Noise Exposure Map Update

Noise Model Input

- **NEM data input includes:**
 - **Aircraft operations**
 - Number of operations by day and night
 - Aircraft types
 - Aircraft noise and performance
 - Flight tracks
 - Runway use

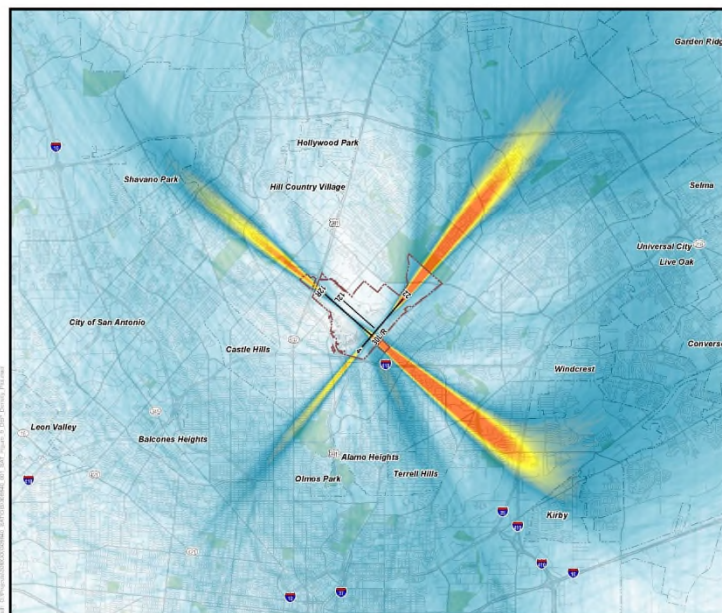
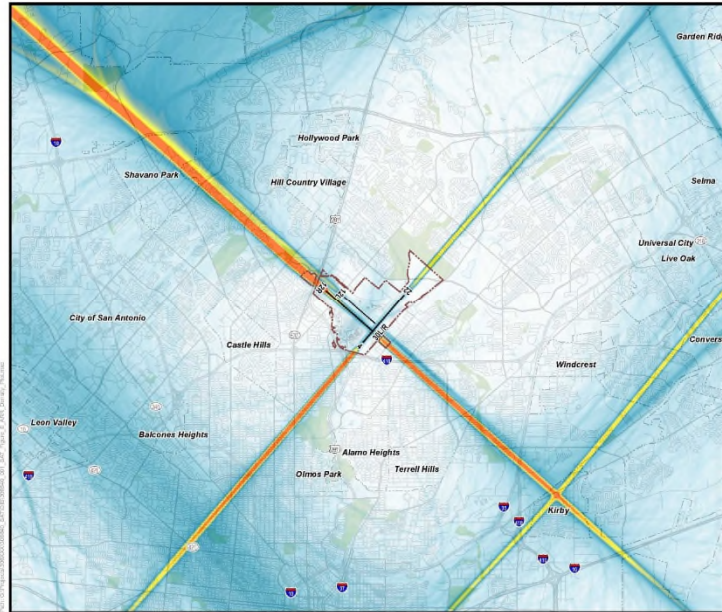


- **Annual average weather**
 - Temperature
 - Barometric pressure
 - Relative humidity
- **Land use**
 - Existing
 - Planned (zoning)
- **Jurisdictional boundaries**
- **Population**



San Antonio International Airport
City of San Antonio

Noise Exposure Map Update Noise Model Input



San Antonio International Airport
City of San Antonio

Flight Track Density
Low Medium High

Noise Compatibility Program Noise Abatement Measures

- **NA-1:** Conduct live tests of noise abatement departure profiles
- **NA-2:** Pursue additional voluntary noise abatement procedures to further reduce noise levels of aircraft operations
- **NA-3:** Establish a preferential runway use program and enhance its effectiveness by extending existing runways
- **NA-4:** For departures from Runway 3, establish a departure corridor that places aircraft over compatible land uses east of Wetmore Road to the extent possible
- **NA-5:** For those times that Runway 21 must be used for departure, establish a departure corridor that places aircraft over the Highway 281 corridor to the extent possible
- **NA-6:** Incorporate the findings and recommendations of the engine run-up study into the FAR Part 150 Noise Compatibility Program (NCP)
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- **NA-8:** Enhance pilot awareness of noise-sensitive areas and noise abatement procedures by providing information for Jeppesen charts, airline pilot manuals, and fixed base operator information
- **NA-9:** Investigate the use of noise barriers along Airport boundaries at runway ends to reduce the effects of takeoff roll noise
- **NA-10:** Encourage Congress to seek stricter aircraft noise standards, particularly regarding a phase-out schedule for aircraft originally manufactured as Stage 2 that have been modified or are operated to meet Stage 3 noise standards
- **NA-11:** Encourage the FAA to develop a phase-out schedule for FAR Part 36 Stage 2 aircraft weighing less than 75,000 pounds



San Antonio International Airport
City of San Antonio

Noise Compatibility Program Noise Mitigation Measures

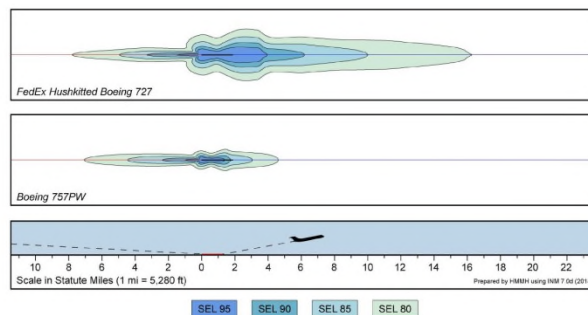
- **NM-1:** Continue the Residential Acoustical Treatment Program within the Noise Mitigation Boundary shown in the San Antonio International Airport 2014 Noise Exposure Map (NEM)
- ***Revised NM-1:*** Continue the Residential Acoustical Treatment Program for structures exposed to aircraft noise DNL 65 dB and higher
- **NM-2:** Continue to provide acoustical treatment for schools and religious facilities that have not yet received such treatment and are within the Noise Mitigation Boundary shown in the San Antonio International Airport 2014 Noise Exposure Map (NEM)
- ***Revised NM-2:*** Continue to provide acoustical treatment to noise-sensitive facilities exposed to aircraft noise of DNL 65 dB and higher
- **NM-3:** Study the mechanism for and impact of incorporating noise exposure acknowledgements into real estate transactions
- **NM-4:** Study mechanism to maintain compatible land uses in current and proposed flight corridors and to prevent development of additional incompatible noise sensitive land uses in areas exposed to DNL 65 and higher



San Antonio International Airport
City of San Antonio

Noise Compatibility Program Airport Noise Reduction

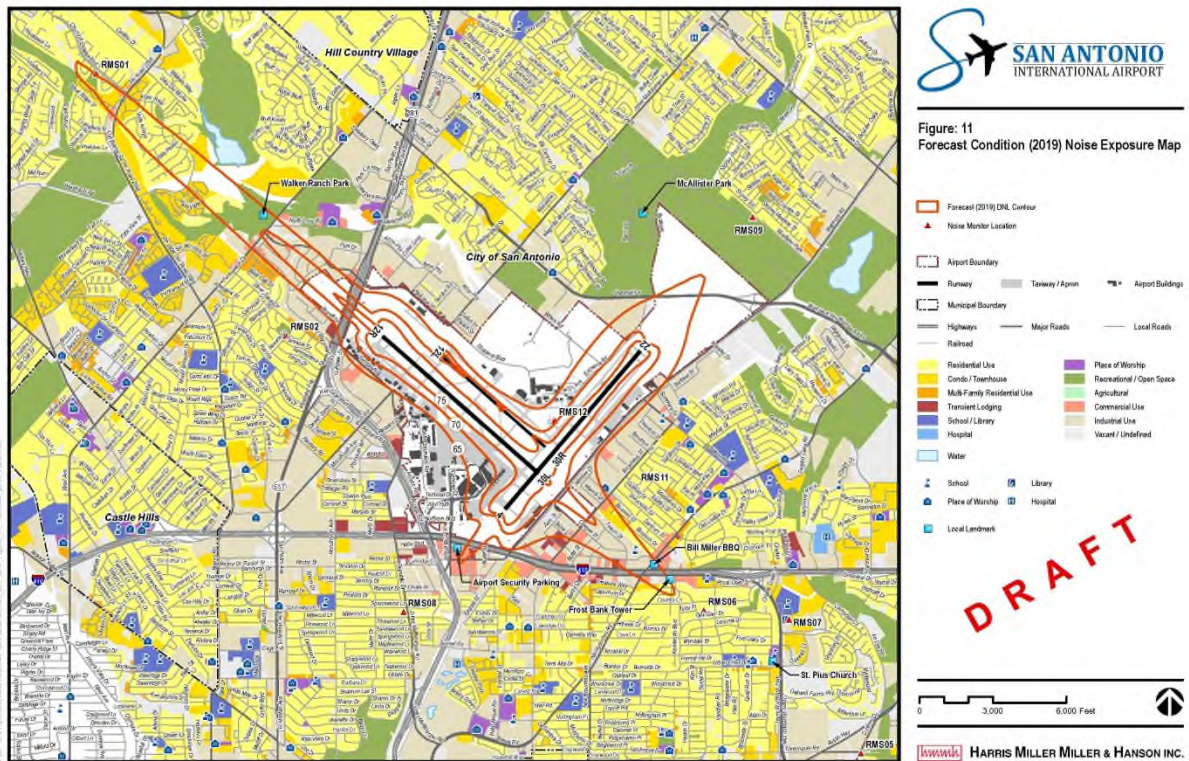
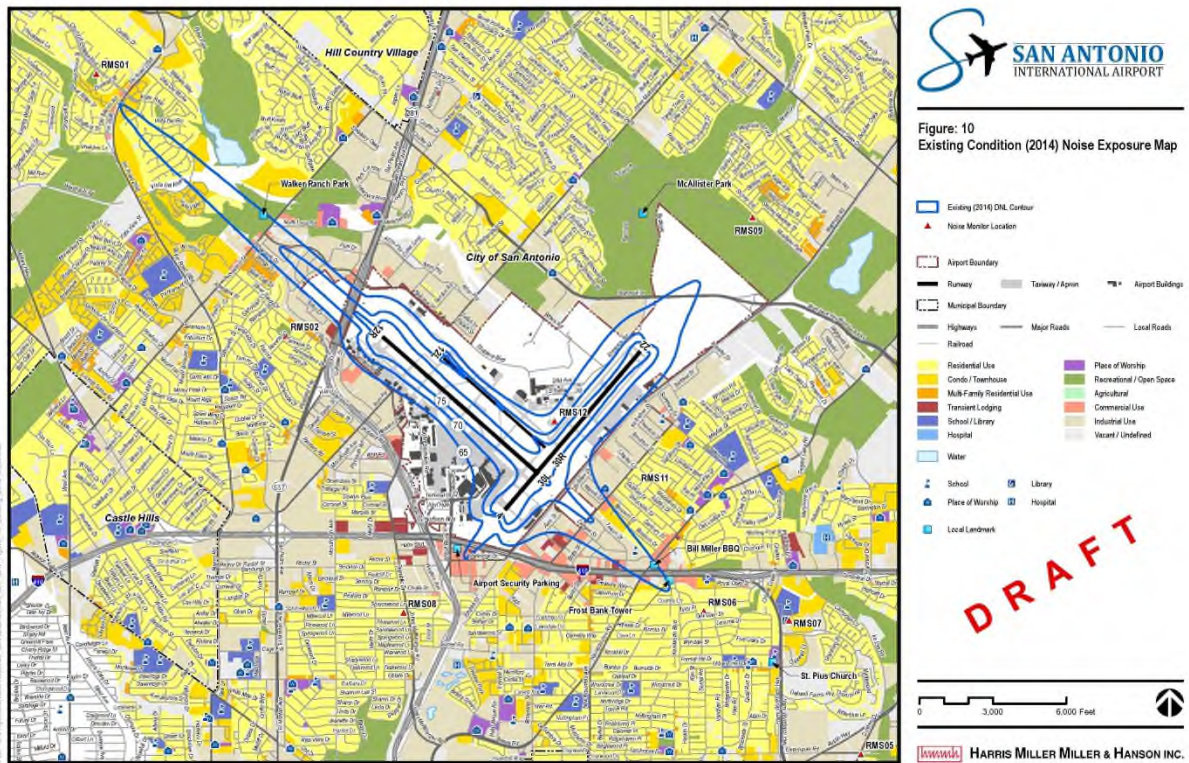
- The City successfully implemented the following Noise Compatibility Program measures:
 - Encouraged aircraft operators to use quieter aircraft at SAT and promoted the retirement of noisier “Stage 2” aircraft

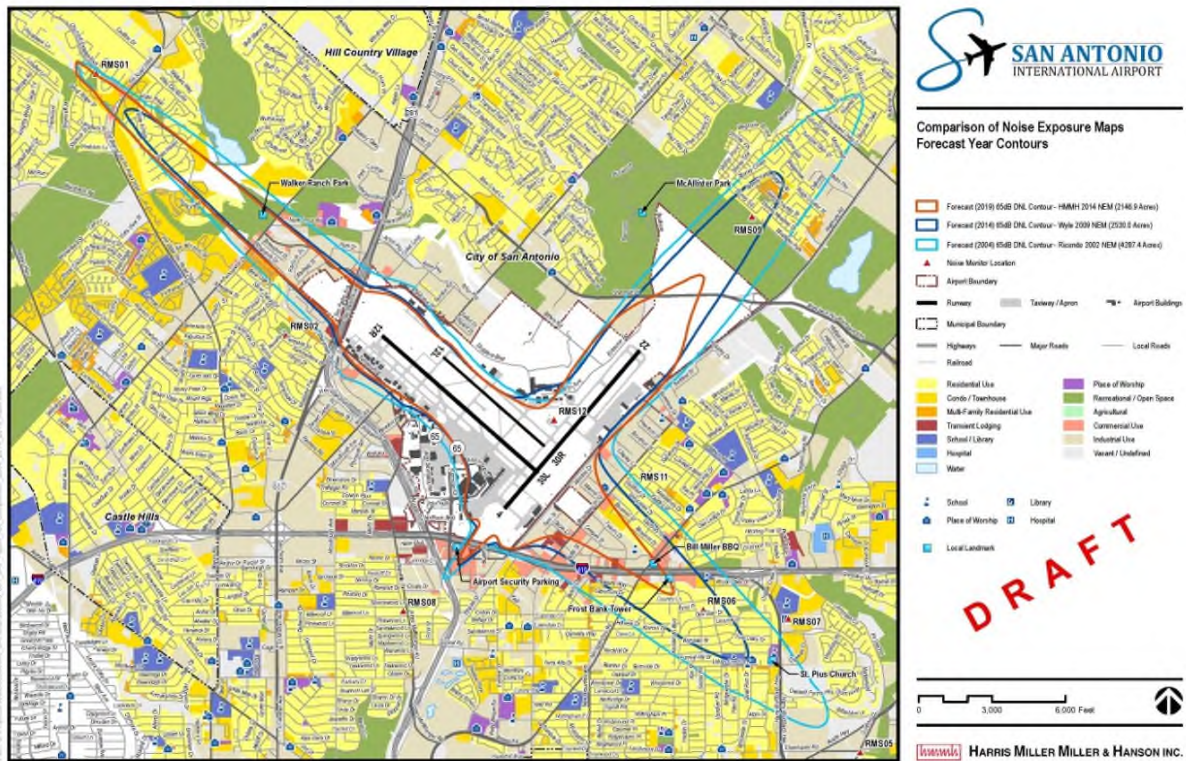


- Tested Noise Abatement Departure Procedures (NADP)
- Installed a Ground Run-up Enclosure (GRE) and implemented a GRE operation plan
- Installed a Noise and Operations Monitoring System (NOMS)
- Extended Runway 4/22



San Antonio International Airport
City of San Antonio





I.5.2 Spanish

The presentation and boards were available to the public as handout materials upon request. An interpreter was on site at each meeting with headsets available to translate the speakers presenting to the audience.

www.hmmh.com

Actualización del Mapa de Exposición al Ruido Revisión del Programa de Compatibilidad de Ruido Aeropuerto Internacional de San Antonio



21 de Octubre, 2014

Agenda

www.hmmh.com

- ¿Qué es un Mapa de Exposición al Ruido?
- Terminología de Ruido del Aeropuerto
- Mapa Actualizado de Exposición al Ruido
- Historia de Programa de Compatibilidad de Ruido en el SAT
- Reducción de Ruido Lograda en el SAT
- Revisión del Programa de Compatibilidad de Ruido
- Calendario del Proyecto
- Comentarios Públicos

2



¿Qué es un Mapa de Exposición al Ruido?

www.hmmh.com

- Código de Reglamentos Federales (14 CFR) Parte 150, “Planificación de Compatibilidad con el Ruido del Aeropuerto”
 - Programa federal voluntario
 - Más de 250 aeropuertos han participado
 - Establece normas de análisis
 - Provee acceso a fondos federales
 - Ayuda en obtener apoyo de la FAA para implementación
- Dos elementos técnicos principales
 - Mapas de Exposición al Ruido (NEM por sus siglas en inglés)
 - Programa de Compatibilidad del Ruido (NCP por sus siglas en inglés)

3



¿Qué es un Mapa de Exposición al Ruido?

www.hmmh.com

- Los NEMs describen:
 - El plano y la operación del aeropuerto
 - Exposición al ruido relacionada con las aeronaves
 - Usos de terreno en el entorno del aeropuerto
 - Situación de compatibilidad entre el ruido y el uso de terreno
- NEMs tienen que proveer información para dos periodos de tiempo
 - El año que se somete (2014)
 - Pronóstico para cinco años (2019)
- La exposición anual al ruido indicado por “curvas de nivel”

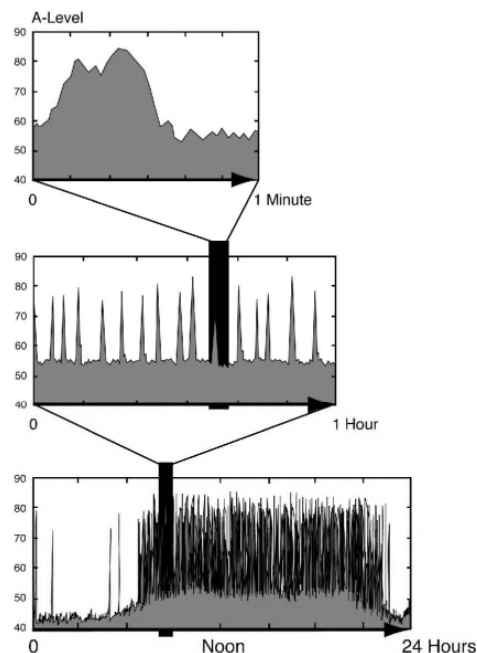


4

Terminología del Ruido del Aeropuerto

www.hmmh.com

- Ruido – “sonido no deseado”
- El decibel, dB
- Decibel A-ponderado
- Máximo A-ponderado nivel de sonido, Lmax
- Nivel de Exposición Una Sola Vez, SENEL
- Nivel Promedio de Ruido Día y Noche, DNL



5

Mapa Actualizado de Exposición al Ruido Proceso

www.hmmh.com

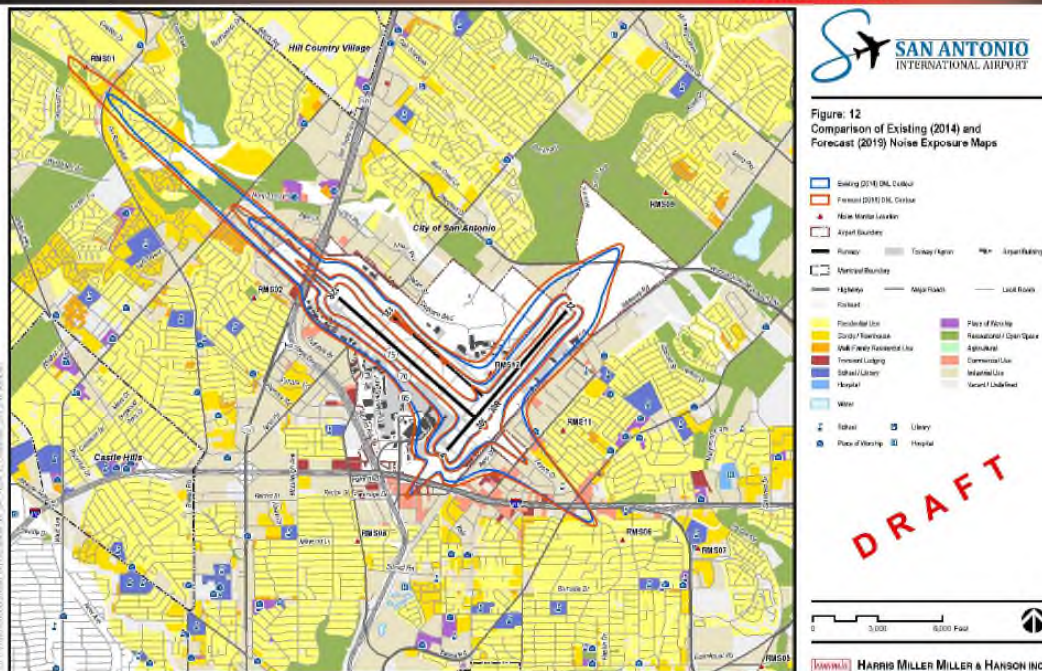
- Revisar el actual Programa de Compatibilidad del Ruido
- Procesar datos de huellas de aeronaves e identificación
- Usar el Pronóstico del Área del Terminal (TAF) de la FAA
- Comparar los datos históricos de medidas de monitoreo del ruido con los resultados del modelo
- Obtener aprobación de la FAA para la sustitución de aeronaves
- Producir curvas de nivel para el ruido actuales y futuros usando el modelo aprobado por la FAA
 - Modelo Integrado del Ruido (INM) Versión 7.0d

6



Mapa Actualizado de Exposición al Ruido Resultados: 2014 y 2019 Curvas de Nivel del Ruido

www.hmmh.com



Mapa Actualizado de Exposición al Ruido

Resultados: El Ruido Medido Se Compara Bien

www.hmmh.com

Área de Curva de Nivel	Monitoreo de Ruido	Promedio Medido de 5 años DNL	DNL Medido 2013	DNL Modelado 2014	Diferencia
Noroeste	RMS01	63.0 dB	62.8 dB	63.7 dB	w/in 1 dB
Sureste	RMS06	64.2 dB	63.6 dB	63.5 dB	w/in 1 dB
Noreste	RMS09	61.5 dB	60.1 dB	62.7 dB	1-2 dB high
Suroeste	RMS08	56.1 dB	53.2 dB	59.7 dB	3-6 dB high

Resumen

- Muy buen acuerdo entre el promedio anual de DNL medido y lo modelado para el complejo de la Pista 12/30
- DNL promedio anual para la Pista 4/22 modelado de manera conservadora alta



8

Historia del Programa de Compatibilidad de Ruido en el SAT

¿Qué es un Programa de Compatibilidad del Ruido (NCP)?

www.hmmh.com

- El NCP describe las medidas de implementación para mejorar la compatibilidad entre ruido de aeronaves y los usos de terreno dentro del entorno del aeropuerto
- NCP revisa medidas previas y provee análisis para las medidas nuevas
- La documentación del NCP incluye
 - Desarrollo del programa
 - Descripción de todas las medidas
 - Razones para aceptar/rechazar cada medida
 - Estado de la implementación y financiamiento de cada medida



9

Historia del Programa de Compatibilidad de Ruido en el SAT Resumen

www.hmmh.com

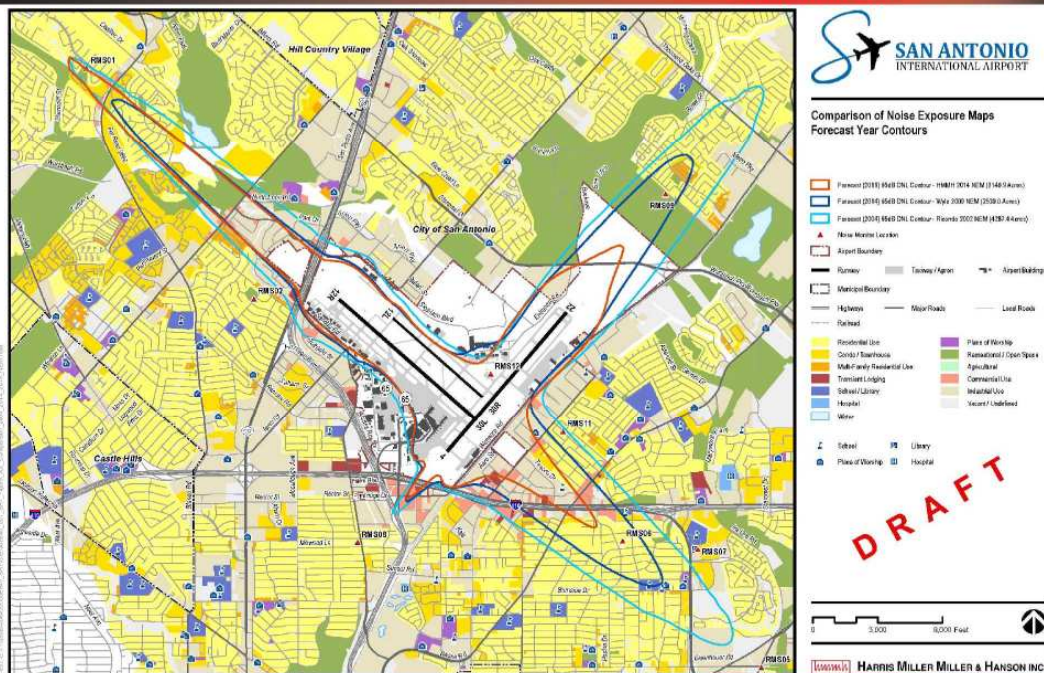
- Capítulo 2 del NEM provee la historia del NCP, que en resumen incluye:
 - 11 medidas recomendadas en el NCP original de 1990
 - La FAA aprobó las 11 medidas
 - Enmienda para modificar dos de las medidas del NCP en 1996
 - La FAA aprobó la enmienda
 - 11 medidas de reducir el ruido y 4 medidas de mitigación recomendadas en la actualización del NCP completo de 2011
 - La FAA aprobó 4 de las 11 medidas para minimizar el ruido y las 4 medidas de mitigación
 - Enmienda para actualizar el NEM para dos mitigaciones para el ruido para el año 2009
 - La FAA aprobó la enmienda



10

Reducción de Ruido Lograda Resultados actualizados del NEM para 2004, 2009 y 2014

www.hmmh.com

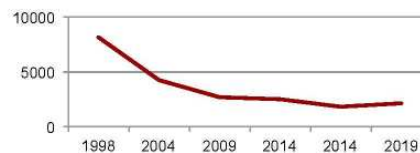


Reducción de Ruido Lograda *Área Reducida de Usos de Terreno No Compatibles*

www.hmmh.com

- Exposición al ruido de aeronaves sigue siendo reducido en el SAT
 - La Ciudad usa la curva de nivel de 65 dB DNL para guiar el uso de terrenos y elegibilidad para medidas del mitigar el ruido
 - “la curva de nivel del ruido”
 - Desde 1998, la curva de nivel del ruido ha disminuido en tamaño (acres) en 75%

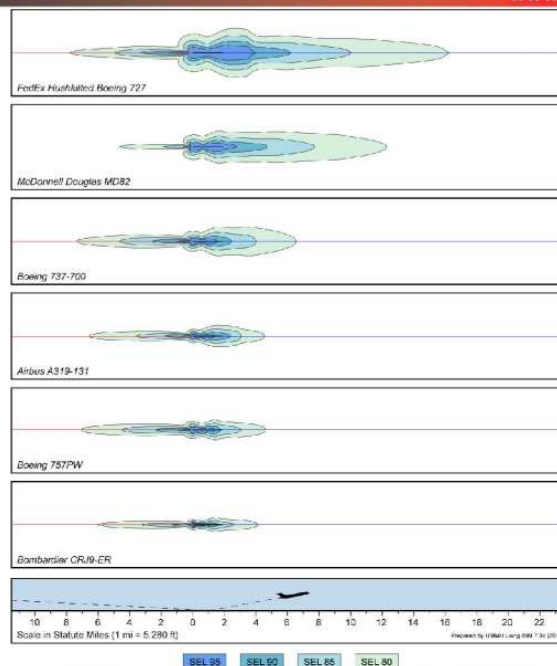
65 dB DNL Contour Size in Acres



12

Reducción de Ruido Lograda *Razones para la Reducción– Aeronaves menos ruidosas*

www.hmmh.com

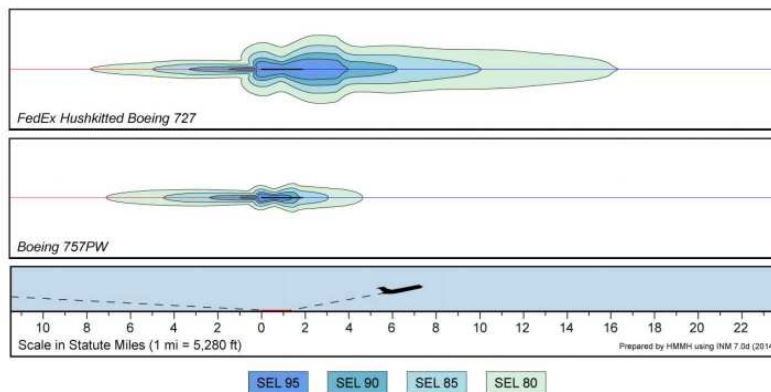


13

Reducción de Ruido Lograda *Razones para la Reducción– Aeronaves menos ruidosas*

www.hmmh.com

- Flota de aeronaves menos ruidosas es el catalizador predominante
 - El cambio más reciente del SAT es el retiro de FedEx de sus aeronaves Boeing 727 con el Boeing 757 que hace menos ruido



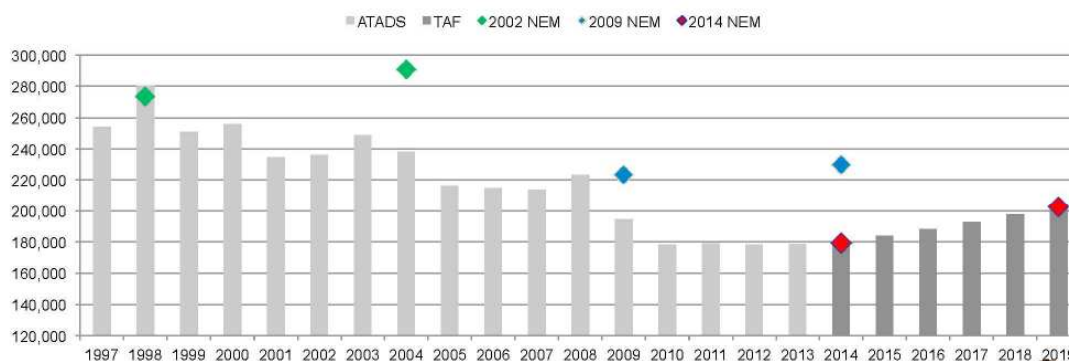
14

Reducción de Ruido Lograda *Razones para la Reducción– Menos Operaciones*

www.hmmh.com

- Las operaciones de aeronaves han bajado en el SAT
 - Reducción de más de 30% desde 1998

SAT Operaciones Anuales de Aeronaves
1997 - 2019



15

Reducción de Ruido Lograda ***Razones para la Reducción – Implementación del NCP***

www.hmmh.com

- Animaron a operadores para que usaran aeronaves menos ruidosas y promovieron el retiro de aeronaves Etapa 2 que son más ruidosas
- 2001 – Probaron procedimientos de reducir el ruido al despegar
- 2002 – Instalación y implementación exitoso del plan operacional de GRE
- 2010 – Instalación final del sistema de monitoreo de ruido y operaciones (NOMS)
- 2013 – Extensión de la Pista 4/22



16

Revisión al Programa de Compatibilidad de Ruido ***Medidas para Reducir el Ruido del Actual NCP***

www.hmmh.com

- NA-1: Conducir exámenes en vivo de los perfiles para minimizar el ruido al despegar
 - La FAA no aprobó, SAAS completó en 2001
 - No se propone revisión
- NA-2: Buscar procedimientos voluntarios adicionales para reducir el ruido para todavía más reducir los niveles de ruido de las aeronaves
 - La FAA aprobó
 - No se propone revisión
- NA-3: Establecer un programa de pista preferida y mejorar su efectividad extendiendo pistas actuales
 - La FAA no aprobó, implementado parcialmente en 2013
 - No se propone revisión



17

Revisión al Programa de Compatibilidad de Ruido *Medidas para Reducir el Ruido del Actual NCP*

www.hmmh.com

- **NA-4:** Para despegues de la Pista 3, establecer un corredor de despegue que coloca a las aeronaves sobre usos de terreno al este de Wetmore Road compatibles hasta donde es posible
 - La FAA no aprobó
 - No se propone revisión
- **NA-5:** En aquellas situaciones cuando se necesita usar la Pista 21 para despegues, establecer un corredor que coloca a las aeronaves sobre la carretera 281 hasta donde es posible
 - La FAA no aprobó
 - No se propone revisión
- **NA-6:** Incorporar los resultados y las recomendaciones del estudio de las carrerillas de motor en la parte FAR del Parte 150 Programa de Compatibilidad del Ruido (NCP por sus siglas en inglés)
 - La FAA aprobó, completado en 2002
 - No se propone revisión



18

Revisión al Programa de Compatibilidad de Ruido *Medidas para Reducir el Ruido del Actual NCP*

www.hmmh.com

- **NA-7:** Instalar un sistema para monitorear el ruido de las aeronaves y las operaciones para seguir el uso de corredores de despegue y perfiles de despegue
 - La FAA aprobó, completado en 2010
 - No se propone revisión
- **NA-8:** Concientizar mejor a los pilotos respecto a las áreas sensibles al ruido y los procedimientos para reducir el ruido por medio de proveer información para gráficas Jeppesen, manuales para pilotos de aeronaves, e información para operadores de bases fijas
 - La FAA aprobó
 - No se propone revisión
- **NA-9:** Investigar el uso de barreras al ruido en los límites del aeropuerto al final de las pistas para reducir los efectos del ruido al despegar
 - La FAA aprobó
 - No se propone revisión



19

Revisión al Programa de Compatibilidad de Ruido *Medidas para Reducir el Ruido del Actual NCP*

www.hmmh.com

- **NA-10: Animar al Congreso para que busque normas más estrictas para el ruido de las aeronaves, en particular con respecto a aeronaves que están programadas para eliminarlas que originalmente fueron manufacturadas para Etapa 2 que han sido modificadas o se operan para alcanzar normas de Etapa 3**
 - La FAA no aprobó, la medida completada por medio de acción del Congreso
 - No se propone revisión
- **NA-11: Animar a la FAA para que desarrolle un cronograma para la eliminación del FAR Parte 36 Etapa 2 aeronaves que pesan menos de 75.000 libras**
 - La FAA no aprobó, la medida parcialmente completada por medio de acción del Congreso
 - No se propone revisión

20



Revisión al Programa de Compatibilidad de Ruido *Medidas para Reducir el Ruido del Actual NCP*

www.hmmh.com

- **NM-1: Continuar el Programa de Tratamiento Acústico Residencial dentro del Límite de Mitigación de Ruido mostrado en el Mapa de Exposición al Ruido (NEM) del Aeropuerto Internacional de San Antonio**
 - La FAA aprobó, Implementado por la Ciudad en 1,423 casas y 216 apartamentos
 - Revisión propuesta para quitar la dependencia en un año particular del NEM
- **NM-2: Continuar proveyendo tratamiento acústico para escuelas y estructuras religiosas que todavía no han recibido tal tratamiento y se encuentran dentro de los Límites de Mitigación al Ruido mostrados en el Mapa de Exposición al Ruido (NEM) del Aeropuerto Internacional de San Antonio**
 - La FAA aprobó, Implementado por la Ciudad
 - Revisión propuesta para quitar la dependencia en un año particular del NEM

21



Revisión al Programa de Compatibilidad de Ruido *Medidas para Reducir el Ruido del Actual NCP*

www.hmmh.com

- **NM-3: Estudiar el mecanismo para y el impacto de incorporar reconocimiento de exposición al ruido en transacciones de bienes raíces**
 - La FAA aprobó, la Ciudad revisó el proceso
 - No se propone revisión
- **NM-4: Estudiar el mecanismo para mantener la compatibilidad entre usos de terreno en los corredores actuales y propuestos y para prevenir el desarrollo de usos adicionales de terreno que no son compatibles en áreas expuestas a DNL 65 o más**
 - Aprobado por la FAA, implementado por la ciudad en 2010 mediante el Plan de Uso de Terreno en el Area Vecina al Aeropuerto de San Antonio
 - No se propone revisión

22



Revisión al Programa de Compatibilidad de Ruido *Medidas para Reducir el Ruido del Actual NCP*

www.hmmh.com

- No se incluyen medidas del programa en el actual NCP
- Las medidas del NCP original implementadas por la Ciudad incluyen:
 - Establecer un puesto para un oficial para reducir el ruido
 - Actualmente Steven Southers, Gerente de Administración del Medio Ambiente
 - Instalar un sistema para monitorear el ruido continuamente
 - Se usa actualmente EnvironmentalVue
 - Datos de las trayectorias de vuelos e identificación de aeronaves
 - 12 monitores de ruido fijos
 - Desarrollar un procedimiento para investigar y documentar quejas sobre ruido

23



Revisión al Programa de Compatibilidad de Ruido

Propósitos de las Revisiones

www.hmmh.com

- La Ciudad espera continuar proveyendo mitigación a propiedades por el ruido (a medida que los fondos federales estén disponibles) que:
 - Están dentro de la curva de ruido idónea (65 dB DNL)
 - Cumpla todos los requisitos de idoneidad federal para la mitigación de ruido.
- Los triunfos de la compatibilidad de ruido en el SAT incluyen:
 - Programa de Tratamiento Acústico Residencial
 - 1,423 hogares y 216 unidades de departamentos
 - Tratamiento acústico para colegios e instalaciones religiosas.
 - 10 escuelas, 19 instalaciones religiosas, 1 biblioteca y 2 hogares de ancianos
 - Plan de Utilización de las Inmediaciones del Aeropuerto Internacional de San Antonio.
 - Se requiere que el Departamento de Aviación revise y dé su aprobación/desaprobación de las peticiones de reclasificación en la Zona de Interés del Aeropuerto.

24



Revisión al Programa de Compatibilidad de Ruido

Propósitos de las Revisiones

www.hmmh.com

- Existen 484 parcelas sensibles al ruido dentro de la curva de ruido del SAT como se dispuso en el Mapa de Exposición de Ruido 2019.
 - De esas parcelas, 205 son compatibles, puesto que ya recibieron tratamientos de aislamiento del ruido.
 - 47 de esas parcelas son compatibles (no elegibles para el tratamiento de aislamiento del ruido), puesto que fueron construidas después del 1 de octubre, 1998.
 - 232 de esas parcelas son potencialmente elegibles para la mitigación del ruido, a través del Programa de Tratamiento Acústico Residencial (RATP por sus siglas en inglés).

25



Revisión al Programa de Compatibilidad de Ruido Revisión Propuesta para la Mitigación de Ruido, 1° Medida

www.hmmh.com

- **Medidas existentes desde el año 2009 NEM (NM-1):**

Continuar el Programa de Tratamiento Acústico Residencial dentro del Límite de Mitigación de Ruido mostrado en el Mapa de Exposición al Ruido (NEM) del Aeropuerto Internacional de San Antonio

- **Medidas Propuestas en el año 2014 NEM (NM-1):**

Continuar con el Programa de Tratamiento Acústico Residencial para las estructuras expuestas al ruido provocado por las aeronaves DNL 65 dB y mayores.

26



Revisión al Programa de Compatibilidad de Ruido Revisión Propuesta para la Mitigación de Ruido, 2° Medida

www.hmmh.com

- **Medidas existentes desde el año 2009 NEM (NM-2):**

Continuar brindando tratamiento acústico a las escuelas e instalaciones religiosas que aún no lo reciben y se encuentran dentro de los Límites de Mitigación de Ruido mostrados en el Mapa de Exposición al Ruido (NEM) del Aeropuerto Internacional de San Antonio.

- **Medidas Propuestas en el año 2014 NEM (NM-2):**

Continuar brindando tratamiento acústico a aquellas instalaciones sensibles al ruido expuestas al ruido producido por las aeronaves de DNL 65 dB y mayores.

27



Programa del Proyecto

www.hmmh.com

Fecha	Punto Clave
Mayo, 2014	Inicio del Proyecto.
Mayo, 2014	Reunión con los usuarios del aeropuerto, personal de SAAS y FAA ATCT
Junio, 2014	Pronóstico de operaciones aéreas y desarrollo de los registros del modelo de ruido.
Julio, 2014	Borrador de la revisión del capítulo Programa de Compatibilidad de Ruido
Agosto, 2014	Borrador de las curvas de nivel en la exposición al ruido de las aeronaves.
Agosto, 2014	Borrador del documento de actualización NEM.
Septiembre – Octubre, 2014	Un periodo de 30 días para comentarios públicos Reunión Pública NEM/Audiencia NCP
Noviembre, 2014	Para su aprobación, presentar a la FAA el documento final de actualización NEM.



28

Solicitud de Comentarios Públicos

www.hmmh.com

- La ciudad está en busca de comentarios públicos para:
 - Actualización del Mapa de Exposición al Ruido (NEM)
 - Revisión del Programa de Compatibilidad de Ruido (NCP)
- Las opciones para la presentación de comentarios públicos incluyen:
 - Reportero de la Corte
 - Disponible para escuchar sus comentarios orales.
 - Tarjetas de Comentarios
 - Ubicadas en la mesa de comentarios para comentarios por escrito.
 - Enviar esta noche sus comentarios escritos o por email a:
Ximenes & Associates, Inc.
421 Sixth Street, Suite 1
San Antonio, TX 78215
- El período de comentarios finaliza el 23 de octubre, 2014.



29

De vuelta a la Exposición Pública

Obtenga respuestas y, por favor, envíe sus comentarios

www.hmmh.com

- Puestos disponibles para dar respuesta a sus preguntas acerca de la actualización del **Mapa de Exposición al Ruido 2014** para el Aeropuerto Internacional de San Antonio
 - 1. Curvas de Nivel de Exposición 2014 y 2019
Rhea Gundry
 - 2. Antecedentes de NEM & Modelo de Registro
Bob Behr
 - 3. Programa de Compatibilidad de Ruido
Gene Reindel
 - 4. Programa de Tratamiento Acústico Residencial (RATP)
Cheryl Chamness
 - 5. Comentarios por Escrito
Linda Ximenes
 - 6. Comentarios Orales
Reportero de Corte
- **El período de comentarios finaliza el 23 de octubre, 2014.**



Aeropuerto Internacional de San Antonio
Municipio de San Antonio

**Actualización del Mapa de Exposición
al Ruido
y
La Revisión del Programa de
Compatibilidad del Ruido
14 CFR Part 150**



Reunión Pública y Audiencia Pública
10 de noviembre de 2014
6:00 pm

- *Presentación a las 6:30 pm*
- *Reportero Judicial disponible para aceptar comentarios verbales*
- *Hojas para comentarios disponible para comentarios por escrito*
- *Comentarios aceptados solo hasta las 5 pm del 13 de noviembre de 2014*

Actualización del Mapa de Exposición al Ruido

Cronología del Proyecto

Fecha	Hito
Mayo de 2014	Comienzo del Proyecto
Mayo de 2014	Reunion con usuarios del aeropuerto y personal del SAAS y FAA ATCT
Junio de 2014	Pronosticar operaciones de aeronaves y preparar insumos para modelar el ruido
Julio de 2014	Redactar el capítulo borrador del Programa de Compatibilidad con el Ruido para revisar
Agosto de 2014	Redactar el borrador de las curvas de nivel de exposición al ruido
Agosto de 2014	Redactar el borrador del documento de Actualización del NEM
Septiembre- Octubre de 2014	Periodo de comentario público por 30 días Reunión Pública para el NEM/ Audiencia Pública para el NCP
Noviembre de 2014	Someter la versión final de la actualización del NEM a la FAA para su aprobación

Trasfondo de la Actualización del Mapa para la Exposición al Ruido – 14 CFR Part 150

- **Programa voluntario– patrocinado por la FAA**
- **Establece pautas para el análisis del ruido**
- **Más de 250 aeropuertos han participado**
- **Provee acceso a fondos federales para:**
 - **Reducción del ruido, por ej.:**
 - Recintos de Carrerilla Terrestre (GRE)
 - Procedimientos para la Reducción de Ruido al Despegar (NADP)
 - **Mitigación del Ruido, pro ej.:**
 - Insulación residencial para el ruido
 - Adquisición de terreno
- **Dos elementos principales:**
 - **El Mapa de Exposición al Ruido (NEM)**
 - Actual (2014) y futuro (2019)
 - **Programa de Compatibilidad del Ruido (NCP)**
 - Revisión propuesta

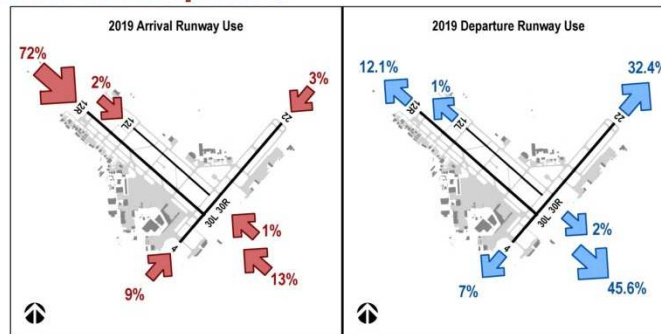


San Antonio International Airport
City of San Antonio

Actualización del Mapa de Exposición al Ruido

Insumos para Modelar el Ruido

- **Insumo de datos para el NEM incluye:**
 - **Operación de aeronaves**
 - Número de operaciones de día y de noche
 - Tipos de aeronaves
 - Ruido de los aeronaves y su desempeño
 - Huelles de los vuelos
 - Uso de las pistas



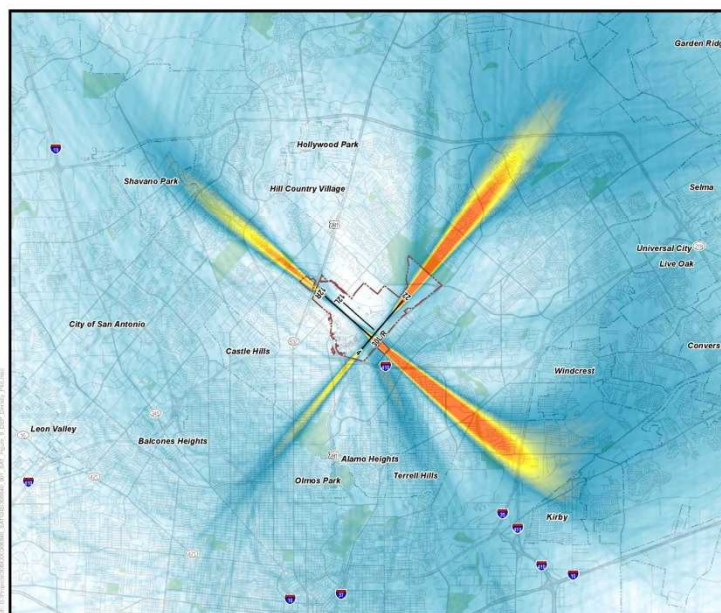
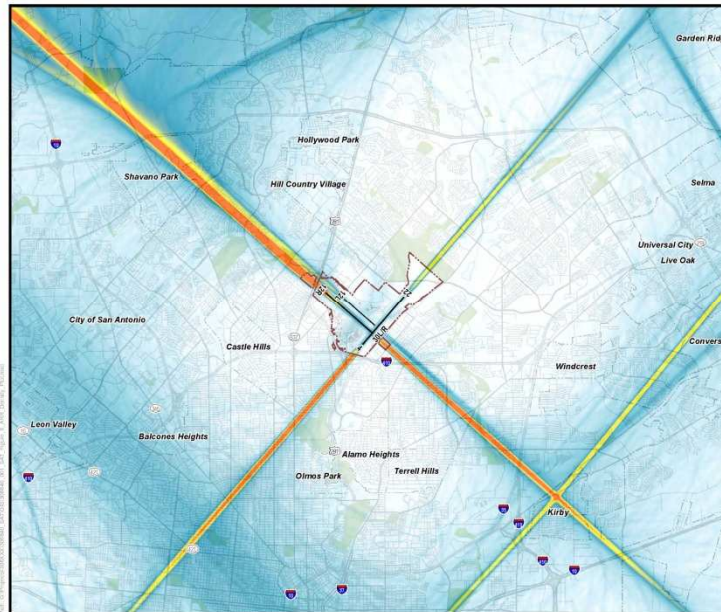
- **Tiempo promedio anual**
 - Temperatura
 - Presión barométrica
 - Humedad relativa
- **Uso de terrenos**
 - Actual
 - Planificados (leyes de urbanismo)
- **Límites jurisdiccionales**
- **Población**



San Antonio International Airport
City of San Antonio

Actualización del Mapa de Exposición al Ruido

Insumos para Modelar el Ruido



San Antonio International Airport
City of San Antonio

Flight Track Density
Low Medium High

Programa de Compatibilidad del Ruido Medidas para Reducción del Ruido

- **NA-1:** Conducir exámenes en vivo de perfiles de reducción de ruido al despegar
- **NA-2:** Buscar procedimientos adicionales de reducción de ruido para todavía más reducir los niveles de ruido de las operaciones de aeronaves
- **NA-3:** Establecer un programa de uso de pista preferida y mejorar su efectividad extendiendo pistas actuales
- **NA-4:** Para despegues de la Pista 3, establecer un corredor de despegue que coloca a las aeronaves sobre usos de terreno al este de Wetmore Road compatibles a la medida posible
- **NA-5:** En aquellas situaciones cuando se necesita usar la Pista 21 para despegues, establecer un corredor que coloca a las aeronaves sobre la carretera 281 a la medida posible
- **NA-6:** Incorporar los resultados y las recomendaciones del estudio de las carrerillas de motor en la parte FAR del Parte 150 Programa de Compatibilidad del Ruido (NCP por sus siglas en inglés)
- **NA-7:** Instalar un sistema para monitorear el ruido de las aeronaves y las operaciones para seguir el uso de corredores de despegue y perfiles de despegue
- **NA-8:** Concientizar mejor a los pilotos respecto a las áreas sensitivas al ruido y los procedimientos para reducir el ruido por medio de proveer información para gráficas Jeppesen, manuales para pilotos de aeronaves, e información para operadores de bases fijas
- **NA-9:** Investigar el uso de barreras al ruido por los límites del aeropuerto al terminal de las pistas para reducir los efectos del ruido al despegar
- **NA-10:** Animar al Congreso para que busquen normas más estrictas para el ruido de las aeronaves, en particular con respecto a aeronaves que están programados para eliminarlos que originalmente fueron manufacturados para Etapa 2 que han sido modificados o se operan para alcanzar normas de Etapa 3
- **NA-11:** Animar a la FAA para que desarrollen un cronograma para la eliminación del FAR Parte 36 Etapa 2 aeronaves que pesan menos del 75.000 libras



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Programa de Compatibilidad del Ruido Medidas para Reducción del Ruido

- **NM-1:** Continuar el Programa de Tratamiento Residencial Acústica dentro del Límite de Mitigación de Ruido mostrado en el Mapa de Exposición al Ruido (NEM) del Aeropuerto Internacional de San Antonio
- ***NM-1 Revisado:*** Continuar el programa de Tratamiento Residencial Acústico para estructuras expuestas a niveles de ruido de aeronaves de DNL 65dB o más
- **NM-2:** Continuar a proveer tratamiento acústico para escuelas y estructuras religiosas que todavía no han recibido tal tratamiento y se encuentran dentro de los Límites de Mitigación al Ruido mostrados en el Mapa de Exposición al Ruido (NEM) del Aeropuerto Internacional de San Antonio
- ***NM-2 Revisado:*** Continuar a proveer tratamiento acústico a estructuras sensibles al ruido expuestas al ruido de aeronaves de \geq DNL 65 dB o más
- **NM-3:** Estudiar el mecanismo para y el impacto de incorporar reconocimiento de exposición al ruido en transacciones de bienes raíces
- **NM-4:** Estudiar el mecanismo para mantener la compatibilidad entre usos de terreno en los corredores actuales y propuestos y para prevenir el desarrollo de usos adicionales de terreno que no son compatibles en áreas expuestas a DNL 65 o más

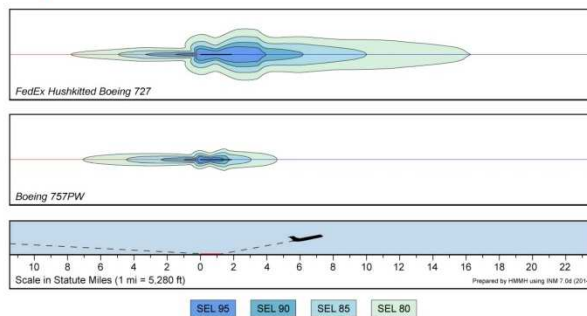


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Programa de Compatibilidad del Ruido

Reducción de Ruido del Aeropuerto

- La ciudad implementó efectivamente las medidas del Programa de Compatibilidad de Ruido a continuación:
 - Animar a operadores de aeronaves a usar aeronaves más silenciosos en SAT y promovieron el retiro de areonaves Etapa 2 que son más ruidosos.



- Probaron Procedimientos para Minimzar el Ruido al Despegar (NADP)
- Instalaron un Recinto de Carrerilla Terrestre (GRE) e implementaron un plan operacional para el GRE
- Instalaron un Sistema para Monitorear el Ruido y Operaciones (NOMS)
- Extendieron Pista 4/22



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I.6 Comments Received During Public Review Period

All public comments can be found in Volume II of the SAT Noise Exposure Map Update and Noise Compatibility Program Revision, separate from this document. Each comment (written, emailed, or recorded by the Public Hearings provided Court Reporter) was assigned a number and is summarized in a comment matrix at the beginning of Volume II along with a scan of the original comment provided following the matrix.

Below are comments, or particular sections of comments, that pertain only to the NCP and The City's response.

Comment Number PH1-89: [partial comment] If the contours will be redrawn every five years, what is the benefit to dropping the year from the description? It sounded as if the only benefit was to allow the changes to be made without the public being made aware.

Response: The benefit to not including the noise exposure map year in the sound insulation noise compatibility measures is to remove the need for the airport to update the NCP each time the NEM is updated. The NEM update includes notifying the public and seeking public comment to the results. It is more efficient to continue the sound insulation programs based on the currently accepted NEM rather than based on a particular NEM year.

Comment Number PH2-97: [partial comment] There appears to be nothing in the NCP addressing these issues for us, especially regarding noise abatement (reducing the noise emanating from the aircraft and airport). It appears the NCP only hopes that manufacturers will make their planes quieter through congressional legislation. Several measures previously submitted that might help (e.g. noise barriers, flight procedures) were disapproved, and have not been readdressed. We are not necessarily asking for noise mitigation in our homes (sound insulation in roofs, windows), but would prefer implementation of mechanisms to reduce noise coming from the airport and flight of aircraft departing Runway 22. Also request the NCP consider evaluation of the use of this northerly track [Runway 4 departures] – e.g. can it be excluded from departure operations? We note that in watching TV late afternoon/early evening, the digital signal (visual and audio) on the TV breaks up and disappears, at which time we can hear the drone of a plane. The signal returns when the airplane is gone. Request investigation into the cause of this interference, and potential solutions.

Response: The current NCP includes 11 noise abatement measures and 4 noise mitigation measures. Mitigation measures, such as the Residential Acoustical Treatment Program (RATP) at SAT, are intended for those areas that continue to be exposed to aircraft noise of DNL 65 dB and greater with the implementation of noise abatement measures. The FAA disapproved 7 of the 11 noise abatement measures which are therefore not eligible for federal funding to implement. Regardless, the City has proceeded to implement 4 of those 7 disapproved measures at its own expense. The implementation of those noise abatement measures, particularly urging the phase out of the noisiest aircraft, has resulted in less aircraft noise exposure as indicated in the most recent noise exposure maps provided in the report. The direction of flights in the immediate area of SAT is controlled by the FAA's Air Traffic Control Tower (ATCT). The City has no control over the aircraft after they are in the air. According to the SAT ATCT, these northerly departures occur to de-conflict with arriving air traffic into Randolph Air Force Base (AFB). During normal operations of the runways, Runway 4 departures are infrequent when Randolph AFB is under operations that conduct landings to the East. All runways are available for use by pilots any time they are in service and the winds are calm. The City has not determined whether a full NCP update is warranted at this time, but will take this comment under advisement. In the meantime, the

City will submit the NEM update and the NCP revision of the two publicly presented elements to the FAA in December 2014.

Comment Number PH2-98: [partial comment] The fourth item is there were a series of recommendations to help mitigate the noise, but they were ones, other than making the planes quieter, were disapproved. Things like the walls and change of procedures were all disapproved. So, really, nothing is being done to help mitigate the noise even if there were recommendations that would help.

Response: The current NCP includes 11 noise abatement measures and 4 noise mitigation measures. Mitigation measures, such as the Residential Acoustical Treatment Program (RATP) at SAT, are intended for those areas that continue to be exposed to aircraft noise of DNL 65 dB and greater with the implementation of noise abatement measures. The FAA disapproved 7 of the 11 noise abatement measures which are therefore not eligible for federal funding to implement. Regardless, the City has proceeded to implement 4 of those 7 disapproved measures at its own expense. The implementation of those noise abatement measures, particularly the phase out of the noisiest aircraft, has resulted in less aircraft noise exposure as indicated in the most recent noise exposure maps provided in the report.